

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of )
Wireless Emergency Alerts ) PS Docket No. 15-91
Amendments to Part 11 of the Commission’s Rules ) PS Docket No. 15-94
Regarding the Emergency Alert System )

FURTHER NOTICE OF PROPOSED RULEMAKING

Adopted: April 20, 2023

Released: April 21, 2023

Comment Date: (30 days from the date of publication in the Federal Register)

Reply Comment Date: (60 days from the date of publication in the Federal Register)

By the Commission: Chairwoman Rosenworcel issuing a statement.

TABLE OF CONTENTS

I. INTRODUCTION.....1
II. BACKGROUND.....4
III. DISCUSSION.....10
A. Making WEA More Accessible .....10
1. Enhancing WEA’s Language Support.....11
2. Improving WEA’s Effectiveness with Multimedia Content .....21
B. Integrating WEA More Seamlessly into People’s Lives .....28
1. Allow Alerting Authorities More Flexibility in how WEA Messages Are Presented .....29
2. Prevent Unnecessary Consumer Opt-Out.....31
3. Facilitate More Effective WEA Public Awareness Exercises.....34
C. Establishing a WEA Database to Promote Transparency about WEA Availability and Benchmark WEA Performance.....37
1. Reporting Information about WEA Availability .....38
2. Improving WEA’s Performance to Make it a More Effective Life-saving Tool .....47
3. Reporting Information about WEA’s Performance.....55
4. Establishing a WEA Database.....65
D. Promoting Digital Equity .....75
E. Compliance Timeframes .....76
F. Benefit-Cost Analysis .....83
1. Benefits.....84
2. Costs .....92
IV. PROCEDURAL MATTERS.....97
V. ORDERING CLAUSES.....103

APPENDIX A – Proposed Rules

APPENDIX B – Initial Regulatory Flexibility Analysis

## I. INTRODUCTION

1. Since the launch of the Wireless Emergency Alert (WEA) system in 2012, the alerts and warnings that commercial mobile service providers (CMS Providers) deliver to the mobile devices of people within the United States have become an integral part of our nation's emergency preparedness and response infrastructure.<sup>1</sup> Over the last decade, more than 600 alerting authorities have used WEA more than 78,000 times.<sup>2</sup> When disasters occur, people regularly credit WEA messages for notifying them that an emergency was occurring and helping them to take protective action.<sup>3</sup> WEA messages have also been credited with bringing 131 missing children to safety.<sup>4</sup>

2. While WEA has been helpful for many, there remain gaps that limit its effectiveness. Notwithstanding the potentially lifesaving benefits WEA can offer, some alerting authorities hesitate to use WEA because they do not understand or have confidence in how the system will perform in their jurisdictions during an emergency.<sup>5</sup> Further, under our current rules, alerting authorities can only send WEA messages in English and Spanish,<sup>6</sup> provided they have the in-house language capability to compose

---

<sup>1</sup> *Public Safety and Homeland Security Bureau Announces Timetable for Commercial Mobile Service Providers Electing Not to Transmit Commercial Mobile Alert System (CMAS) Alerts to Notify Existing and Potential Customers*, PS Docket No. 07-287, Public Notice, 27 FCC Rcd 2622 (Mar. 16, 2012).

<sup>2</sup> See Email from Mark Lucero, FEMA IPAWS Program Management Office, to James Wiley, Deputy Chief, Cybersecurity and Communications Reliability Division, Public Safety and Homeland Security Bureau, FCC (Mar. 9, 2023) (on file with author) (stating that, as of March 8, 2023, alerting authorities have issued 78,316 WEA messages); The term "alerting authority" refers to a federal, state, territorial, tribal, or local entities authorized by the Federal Emergency Management Agency (FEMA) to use the Integrated Public Alert and Warning System (IPAWS) to issue public alerts and warnings, including WEA alert messages, in emergency situations. More than [1,500] federal, state, local, tribal and territorial alerting authorities use IPAWS." FEMA, Integrated Public Alert & Warning System, Public Safety Officials, <https://www.fema.gov/emergency-managers/practitioners/integrated-public-alert-warning-system/public-safety-officials> (last visited Feb. 15, 2023). In this *Further Notice of Proposed Rulemaking (Notice)*, we use term "alerting authority" as coextensive with the terms "alerting originator" and "emergency management agency."

<sup>3</sup> See 47 CFR § 10.10(a) (defining an "alert message" as "a message that is intended to provide the recipient information regarding an emergency, and that meets the requirements for transmission by a Participating Commercial Mobile Service Provider under this part"); Will McDuffie et al., *26 dead as 'destructive' EF-4 tornado tears through Mississippi, National Weather Service says*, ABC (Mar. 25, 2023), <https://abc7.com/tornado-mississippi-rolling-fork-damage-warning-silver-city/13011601/>; Ryan Prior, *During late night storms, phone alerts are saving lives in ways TV and radio warning can't*, CNN (May 29, 2019), <https://www.cnn.com/2019/05/29/us/weather-alert-tech-saved-lives-trnd/index.html>; Rick Mecklenburg, *Countless Lives Spared From Tornadoes By Text Messages*, (Nov. 20, 2013), Fox <https://www.fox17online.com/2013/11/20/countless-lives-spared-from-tornadoes-by-text-messages>.

<sup>4</sup> See AMBER Alert, *Statistics* (Jan. 2, 2023), <https://amberalert.ojp.gov/statistics>.

<sup>5</sup> See APCO International, Comments, PS Docket No. 15-91, at 5 (Dec. 8, 2016); Nassau County Office of Emergency Management, Comments, PS Docket No. 15-91, at 2 (Dec. 8, 2016); Harris County, Texas Homeland Security and Emergency Management, Comment, PS Docket No. 15-91, at 1 (Sept. 7, 2018); New York City Emergency Management Department, Comments, PS Docket No. 15-91, at 15 (Dec. 8, 2016); Wireless RERC & CACP, Comments, PS Docket No. 15-91, at 14 (Dec. 8, 2016).

<sup>6</sup> See *Wireless Emergency Alerts; Amendments to Part 11 of the Commission's Rules Regarding the Emergency Alert System*, Report and Order and Further Notice of Proposed Rulemaking, 31 FCC Rcd 11112, 11195, para. 131 (2016) (*WEA R&O*) (requiring Participating CMS Providers to support WEA alerts initiated in Spanish); 47 CFR § 10.480. According to the FEMA IPAWS Program Management Office, since the requirement to support WEA messages in Spanish became effective, as of Mar. 8, 2023, alerting authorities have issued 21,781 WEA messages, 14,240 of which have been translated into Spanish.

alert messages in that language.<sup>7</sup> Even if every WEA message were sent in both English and Spanish, this would still leave the approximately 26 million people living in the United States who do not primarily speak English or Spanish at risk for not understanding the potentially life-saving information conveyed by alert messages.<sup>8</sup> Those who speak other languages are routinely excluded from accessing life-saving information during emergencies.<sup>9</sup>

3. It is essential that the public be able to receive WEA messages in their native language and that alerting authorities better understand WEA performance. Accordingly, we propose to require CMS Providers that have elected to participate in WEA (Participating CMS Providers) take measures to:

- Make WEA more accessible, including to people who primarily speak a language other than English or Spanish and people with disabilities who cannot access messages displayed in conventional formats;
- Integrate WEA more seamlessly into people's lives through increased flexibility in whether the attention signal and/or vibration is triggered;
- Satisfy performance measures for WEA; and
- Provide alerting stakeholders with greater transparency regarding where and on what devices they offer WEA, as well as information about WEA performance.

Through these proposals, we intend to help the millions of people who primarily speak languages other than English or Spanish, as well as those with disabilities, better understand and take protective actions in response to WEA messages;<sup>10</sup> facilitate the more tailored use of WEA through increased flexibility and options for the alerting authority and consumer; and provide alerting authorities with the information they need to use WEA with confidence.

## II. BACKGROUND

4. WEA is a tool for authorized federal, state, and local government entities to geographically target alerts and warnings to WEA-capable mobile devices of Participating CMS Providers' subscribers. The Warning Alert and Response Network (WARN) Act establishes WEA as a

---

<sup>7</sup> *Multilingual Alerting for the Emergency Alert System and Wireless Emergency Alerts*, (Sep. 28, 2022), [https://www.fcc.gov/MultilingualAlerting\\_EAS-WEA](https://www.fcc.gov/MultilingualAlerting_EAS-WEA).

<sup>8</sup> U.S. Census Bureau, *DP02 | Selected Social Characteristics in the United States* (2021), <https://data.census.gov/cedsci/table?q=DP02#>. Sandy Dietrich and Erik Hernandez, *Language Use in the United States: 2019*, pages 8, 14-15 (2022), <https://www.census.gov/content/dam/Census/library/publications/2022/acs/acs-50.pdf>; see also US Census Bureau, *The 2020 Census Speaks More Languages* (Mar. 9, 2020), <https://www.census.gov/newsroom/press-releases/2020/languages.html>.

<sup>9</sup> See Press Release, Attorney General James Urges FCC and the U.S. Wireless Industry to Expand Language Accessibility for Severe Weather Warnings (Oct. 27, 2022), <https://ag.ny.gov/press-release/2022/attorney-general-james-urges-fcc-and-us-wireless-industry-expand-language>; Ashley Wong, *Push for Language Access After Ida Highlights a Greater Need in N.Y.*, (Mar. 3, 2022), <https://www.nytimes.com/2022/03/03/nyregion/severe-weather-alerts-languages-ida.html>; *How the 2017 fires helped reveal Sonoma County's problems with equity*, <https://socoemergency.org/recover/2017-tubbs-nuns-fire/looking-back-at-2017-wildfires/how-the-2017-fires-helped-reveal-sonoma-countys-problems-with-equity/> (last visited on Feb. 21, 2023); Kate Yoder, *During wildfires and hurricanes, a language gap can be deadly*, (Jun. 15, 2021), <https://grist.org/language/wildfires-hurricanes-translation-language-gap/>.

<sup>10</sup> US Census Bureau, *DP02 | Selected Social Characteristics in the United States*(2021), <https://data.census.gov/cedsci/table?q=DP02#>. Sandy Dietrich and Erik Hernandez, *Language Use in the United States: 2019*, pages 8, 14-15 (2022), <https://www.census.gov/content/dam/Census/library/publications/2022/acs/acs-50.pdf>; See also US Census Bureau, *The 2020 Census Speaks More Languages* (Mar. 9, 2020), <https://www.census.gov/newsroom/press-releases/2020/languages.html>.

voluntary system in which CMS providers may elect to participate and gives the Commission authority to adopt “relevant technical standards, protocols, procedures and other technical requirements . . . necessary to enable commercial mobile service alerting capability for commercial mobile service providers that voluntarily elect to transmit emergency alerts.”<sup>11</sup> Pursuant to this authority, the Commission has adopted requirements to prescribe WEA capabilities, WEA testing, and WEA election procedures.<sup>12</sup> While participation by wireless providers is voluntary, those that offer the service must adhere to the technical and operational requirements established by the Commission. The Commission requires each CMS Provider to file an election with the Commission indicating whether it intends to transmit emergency alerts “in whole or in part.”<sup>13</sup> Twenty one of the 76 wireless providers<sup>14</sup> that elect to transmit alert messages, including the three nationwide service providers AT&T, Verizon Wireless, and T-Mobile, have elected to transmit emergency alert messages “in part.”<sup>15</sup> A CMS Provider that elects, in whole or in part, not to transmit emergency alerts is also required to make that election in writing to the Commission, provide conspicuous notice at the point of sale of any devices that will not transmit emergency alerts, and notify its existing subscribers of this election.<sup>16</sup> While Participating CMS Providers, including the three nationwide providers, serve the majority of wireless consumers, hundreds of wireless providers (over 450 of them) have elected not to transmit WEA alert messages.<sup>17</sup>

5. Federal, state, local, tribal, and territorial emergency management agencies apply to the Federal Emergency Management Agency’s (FEMA’s) Integrated Public Alert and Warning System (IPAWS) Program Management Office to become authorized as alerting authorities.<sup>18</sup> FEMA authorizes alerting authorities to issue WEA and other alerts through IPAWS either individually or as part of a Collaborative Operating Group (COGs) after they enter into a Memorandum of Agreement (MOA) with FEMA agreeing to certain rules of behavior.

6. Once authorized, as depicted in *Figure 1* in the following page, alerting authorities can use FEMA-approved alert origination software to send a WEA message written in the Common Alerting

---

<sup>11</sup> Warning, Alert and Response Network (WARN) Act, Title VI of the Security and Accountability for Every Port Act of 2006, 120 Stat. 1884, § 602(a), codified at 47 U.S.C. § 1201, et seq., § 1202(a) (2006) (WARN Act).

<sup>12</sup> See, e.g., 47 CFR § 10.400 *et seq.* (Alert Message Requirements); 47 CFR § 10.500 *et seq.* (Equipment Requirements); 47 CFR § 10.350 (WEA testing and proficiency training requirements); 47 CFR § 10.200 *et seq.* (Election to Participate in Wireless Emergency Alerts System).

<sup>13</sup> See 47 CFR § 10.210.

<sup>14</sup> As a result of the deficiencies in the current WEA data collection mechanisms, many of which are identified in this FNPRM, the number of CMS Providers who have elected to participate “in whole or in part” may not be up to date. For example, the WEA registry lists Sprint Nextel and T-Mobile as having separate WEA elections. See FCC Master Registry, <https://www.fcc.gov/files/weamasterregistry112019.xls>.

<sup>15</sup> See FCC Master Registry, <https://www.fcc.gov/files/weamasterregistry112019.xls> (last visited Feb. 14, 2023) (containing a record as of 2019 of all Participating CMS Providers’ elections to transmit or not transmit alert messages). As of December 31, 2021, AT&T, T-Mobile, and Verizon Wireless were the three facilities-based mobile wireless service providers in the United States that cover a substantial majority of the country. See *Communications Marketplace Report, 2022 Communications Marketplace Report*, GN Docket No. 22-203, FCC 22-103, para. 64 (2022).

<sup>16</sup> 47 U.S.C. §§ 1201(b)(1)(B), (C).

<sup>17</sup> Of the over 400 entities that have filed an election regarding their WEA participation status, however, many appear to be paging operators, specialized mobile radio operators, mobile virtual network operators, and other wireline companies that may or may not be in operation as a CMS Provider. See FCC Master Registry, <https://www.fcc.gov/files/weamasterregistry112019.xls> (last visited Feb. 14, 2023).

<sup>18</sup> FEMA, Sign Up to Use IPAWS to Send Public Alerts and Warnings, <https://www.fema.gov/emergency-managers/practitioners/integrated-public-alert-warning-system/public-safety-officials/sign-up> (last visited Feb. 20, 2023).

Protocol to the FEMA-operated Alert Aggregator (IPAWS Open) via a secure, Internet-based interface (the A-Interface), where it is authenticated, validated and subsequently delivered to FEMA's Alert Gateway (the B-Interface).<sup>19</sup> At the FEMA Alert Gateway, the alert message is prepared for delivery to Participating CMS Providers by being converted to Commercial Mobile Alert for C-Interface (CMAC) format to render it readable by CMS networks. The alert message is then disseminated across a secure Internet-based interface (the C-Interface) to the Participating CMS Provider's Alert Gateway (CMSP Gateway) for distribution to mobile customers over cell broadcast (CMSP Infrastructure).<sup>20</sup> Receipt of a WEA message is accompanied by an "attention signal," a loud, attention-grabbing, two-tone audio signal that uses frequencies and sounds identical to the distinctive and familiar attention signal used by the Emergency Alert System (EAS).<sup>21</sup> The Commission adopted the WEA attention signal and vibration cadence requirements to ensure that subscribers, particularly those with hearing and vision disabilities would be notified when their mobile device receives a WEA.<sup>22</sup>

---

<sup>19</sup> CAP is an open, interoperable, XML-based standard that can include multimedia such as streaming audio or video. *See* OASIS CAP v1.2 (IPAWS Profile for the OASIS Common Alerting Protocol IPAWS USA). CAP messages contain standardized fields that facilitate interoperability between and among devices. *See id.*

<sup>20</sup> From a technical standpoint, the WEA system currently deployed by FEMA and Participating CMS Providers is based on standards created by the Alliance for Telecommunications Industry Solutions (ATIS), the Telecommunications Industry Association (TIA), and the 3rd Generation Partnership Project (3GPP). *See CSRIC IV WEA Messaging Report* at 7. We note that nothing in the WARN Act or the Commission's rules requires WEA to be a cell-broadcast-based service. *See also* CSRIC V, *Working Group Two, Wireless Emergency Alerts – Recommendations to Improve Geo-targeting and Offer Many-to-One Capabilities*, Final Report and Recommendations at 8 (2016); *but see* Letter from Rebecca Murphy Thompson, EVP and General Counsel, Competitive Carriers Association, to Marlene Dortch, Secretary, Federal Communications Commission, PS Docket No. 15-91, at 2 (Oct. 6, 2017) (stating that some carriers offer WEA using a software application, rather than cell broadcast). In addition to the steps listed above, the FEMA Alert Gateway uses a second path to send alert messages to PBS WARN, which acts as a back-up for the C-interface and provides redundancy and resiliency for WEA as a safeguard if WEA's primary deliver path is disrupted.

<sup>21</sup> 47 CFR § 10.520.

<sup>22</sup> *See Commercial Mobile Alert System*, PS Docket No. 07-287, Report and Order, 23 FCC Rcd 6144, 6168-69, paras. 64-67 (2008); 47 CFR §§ 10.520 (attention signal), 10.530 (vibration cadence).

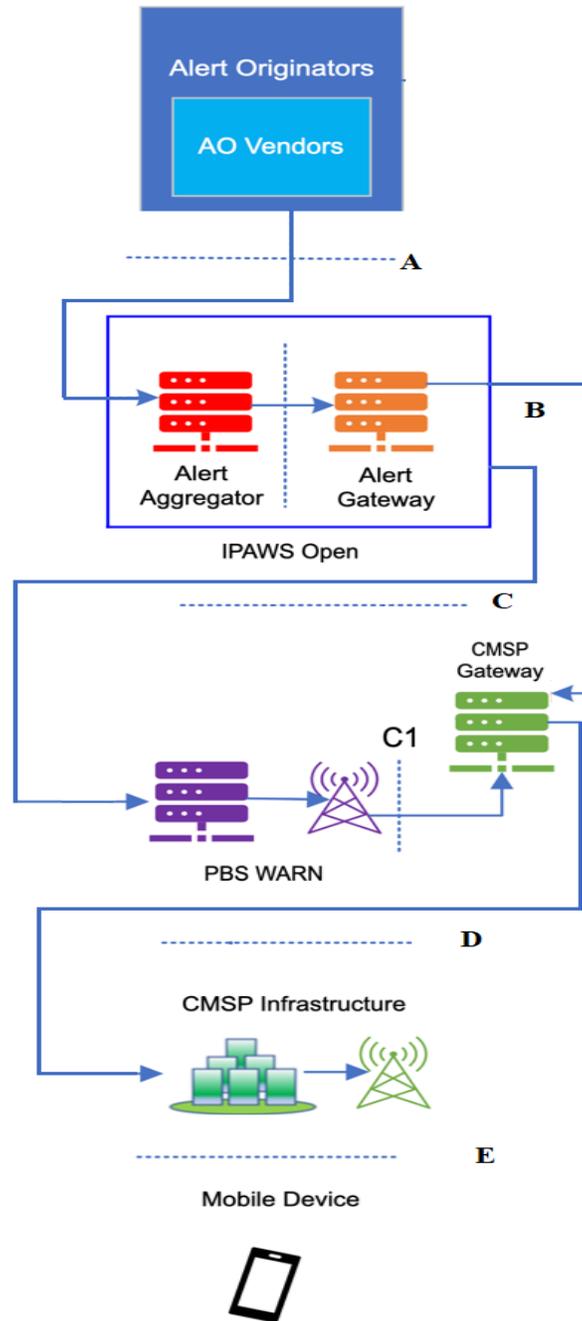


Figure 1: WEA Architecture<sup>23</sup>

7. The Commission does not currently require Participating CMS Providers to measure the performance of their WEA service. In 2016, the Commission proposed to require Participating CMS Providers to annually report on the performance of their WEA systems, and sought comment on whether Participating CMS Providers should log additional information about the WEA alert messages that they transmit to enable performance measurements, including at the mobile device where WEA alert messages

<sup>23</sup> Communications Security, Reliability, and Interoperability Council VII, Report on WEA Performance Reporting (2022) <https://www.fcc.gov/file/24518/download> (CSRIC VIII Report on WEA Performance Reporting). For the purpose of this diagram, an “interface” describes demarcation points between nodes.

are received.<sup>24</sup> In 2018, the Commission sought additional comment on how WEA’s performance should be measured and reported, and how the Commission should address inconsistent WEA delivery.<sup>25</sup> In 2022, the Commission sought to refresh the issue of developing metrics for WEA performance and reporting standards to assist stakeholders with understanding the effectiveness of WEA in their alerting areas, and identify areas for improvement.<sup>26</sup> We proposed that Participating CMS Providers report on reliability, speed, and accuracy to help stakeholders develop an understanding of the WEA system’s end-to-end performance. We also sought comment on how these metrics should be defined and how the data should be logged and reported to the Commission.

8. In 2020, the Government Accountability Office (GAO) reviewed the federal response to natural disasters, and examined the Commission’s oversight of WEA in particular.<sup>27</sup> GAO observed that WEA usage has increased and now serves as the nation’s primary alerting method.<sup>28</sup> GAO noted that while the FCC collects test data from Emergency Alert System (EAS) tests,<sup>29</sup> a similar mechanism does not exist for WEA.<sup>30</sup> GAO found that, while the FCC has required Participating CMS Providers to implement new WEA capabilities, it “has not developed goals and performance measures to help monitor how well the new capabilities perform during emergencies.”<sup>31</sup> GAO observed that “because [the] FCC does not have specific goals and performance measures to monitor WEA improvements, [the] FCC will have difficulty assuring that these improvements are working as intended during emergencies and identifying areas where performance is lacking, which could undermine authorities’ confidence in using IPAWS.”<sup>32</sup> Accordingly, GAO recommended that the FCC should develop measurable goals and performance measures for WEA.<sup>33</sup> In response, the Commission stated it would “complete geo-targeting

---

<sup>24</sup> See *Wireless Emergency Alerts, Amendment of Part 11 of the Commission’s Rules Regarding the Emergency Alert System*, PS Docket Nos. 15-91, 15-94, Report and Order and Further Notice of Proposed Rulemaking, 31 FCC Rcd 11112, para. 161 (2016) (proposing to amend Section 10.350 to require Participating CMS Providers to submit annual reports to the Commission that demonstrate reliability and availability, latency, and geotargeting for their nationwide WEA deployment); see also *id.* at 11215, paras. 173-74 (seeking comment on “whether the logging requirements . . . should extend beyond the CMS Provider Alert Gateway to the [Radio Access Network (RAN)] . . . and to WEA-capable mobile devices . . . whether requiring Participating CMS Providers to log data relevant to the accuracy of geo-targeting, the extent of alert delivery latency, and the system availability and reliability could contribute to the collection of data for Annual WEA Performance Reports?”).

<sup>25</sup> See *Amendment of Part 11 of the Commission’s Rules Regarding the Emergency Alert System; Wireless Emergency Alerts*, PS Docket Nos. 15-91, 15-94, Report and Order and Further Notice of Proposed Rulemaking, 33 FCC Rcd 7086, 7105-06, paras. 46-49 (2018) (*Alerting Reliability FNPRM*). The *Alerting Reliability FNPRM* did not specifically reference the *2016 WEA R&O and FNPRM* although it sought comment on the same issues of performance reporting and measurement.

<sup>26</sup> *Wireless Emergency Alerts; Amendments to Part 11 of the Commission’s Rules Regarding the Emergency Alert System*, PS Docket Nos. 15-91 and 15-94, Further Notice of Proposed Rulemaking (April 21, 2022) (*2022 NPRM*).

<sup>27</sup> See Government Accountability Office, *Emergency Alerting: Agencies Need to Address Pending Applications and Monitor Industry Progress on System Improvements* at 1 (2020), <https://www.gao.gov/assets/gao-20-294.pdf>.

<sup>28</sup> See *id.* at 11.

<sup>29</sup> See *EAS Test Reporting System, (ETRS)*, <https://www.fcc.gov/general/eas-test-reporting-system> (last visited Mar. 1, 2023).

<sup>30</sup> See Government Accountability Office, *Emergency Alerting: Agencies Need to Address Pending Applications and Monitor Industry Progress on System Improvements* at 16 (2020), <https://www.gao.gov/assets/gao-20-294.pdf>.

<sup>31</sup> See *id.* at 25.

<sup>32</sup> See *id.* at 33.

<sup>33</sup> See *id.*

pilot testing with selected local jurisdiction partner(s)” and “complete associated rulemaking to adopt performance measures for enhanced WEA capabilities, as appropriate.”<sup>34</sup>

9. Over the years, the Communications Security, Reliability and Interoperability Council (CSRIC) has studied and reported on various aspects of the WEA system. In 2014, CSRIC IV discussed the possibility of including maps and other graphic information in WEA alert messages, concluding that more study was necessary.<sup>35</sup> More recently, in 2022, CSRIC VIII examined the issue of WEA performance reporting and developed technical requirements for an application programming interface (API) that would allow WEA firmware to leverage native mobile device capabilities.<sup>36</sup> CSRIC VIII recommended automated performance data reporting via email and discussed alternative ways to implement WEA performance reporting, including through the use of staged devices.<sup>37</sup> CSRIC VII also recommended enhancements to WEA messages such as support for machine-based translation, location aware maps, and other multimedia content.<sup>38</sup>

### III. DISCUSSION

#### A. Making WEA More Accessible

10. People with native languages other than English or Spanish, or people with disabilities, may be excluded during emergencies if they are not notified in a manner that they can understand. We tentatively conclude that WEA needs to do more to deliver essential warnings in languages and in a format that is most likely to reach those communities who need this information most. Accordingly, we propose to require Participating CMS Providers to ensure that the WEA-capable mobile devices they sell have the capacity to translate alert messages into most subscribers’ alert language preferences and support multimedia content. We seek comment on these proposals as well as on any other actions that the Commission can take to empower alerting authorities to deliver emergency alerts in an accessible manner to everyone in their communities.

##### 1. Enhancing WEA’s Language Support

11. We propose to require Participating CMS Providers to take steps, described below, to ensure that their subscribers’ WEA-capable mobile devices have the capacity to translate English-language alert messages that they receive into the default language preferences of most subscribers by taking advantage of machine translation technologies. This proposal would address alerting authorities’ need to be able to communicate with people in their communities in languages other than English or Spanish, irrespective of the alerting authorities’ in-house language translation capabilities.<sup>39</sup>

---

<sup>34</sup> FCC, Emergency Alerting (103277) Corrective Action Plan at 2 (2020), <https://www.gao.gov/products/gao-20-294>.

<sup>35</sup> See Communications Security, Reliability, and Interoperability Council IV, Geographic Targeting, Message Content and Character Limitation Subgroup Report at 50 (2014), [https://transition.fcc.gov/pshs/advisory/csric4/CSRIC\\_CMAS\\_Geo-Target\\_Msg\\_Content\\_Msg\\_Len\\_Rpt\\_Final.pdf](https://transition.fcc.gov/pshs/advisory/csric4/CSRIC_CMAS_Geo-Target_Msg_Content_Msg_Len_Rpt_Final.pdf).

<sup>36</sup> See Communications Security, Reliability, and Interoperability Council VIII, *Report on WEA Performance Reporting* (2022) <https://www.fcc.gov/file/24518/download> (*CSRIC VIII Report on WEA Performance Reporting*); Communications Security, Reliability, and Interoperability Council VIII, Report on WEA Application Programming Interface at (Mar. 2023).

<sup>37</sup> *CSRIC VIII Report on WEA Performance Reporting* at 31-34 (2022).

<sup>38</sup> Communications Security, Reliability, and Interoperability Council VIII, Report on WEA Application Programming Interface (Mar. 2023).

<sup>39</sup> Sarah Poss, California Governor’s Office of Emergency Services, Comments, PS Docket Nos. 15-91 and 15-94, at 3-4 (Rec. Dec. 15, 2016) (CalOES Comments); Bob Iberger, Islip Office of Emergency Management, Comments, PS Docket No. 15-91, at 1 (Rec. Dec. 5, 2016); Letter from Preston Findlay, Counsel, NCMEC, to Marlene H. Dortch, Secretary, FCC, PS Docket No. 15-91 et al., at 2 (filed July 6, 2017) (NCMEC *ex parte*); Craig Craft,

(continued....)

12. We seek comment on the technical feasibility of this proposal. Based on recent feedback from industry participants, we believe machine translation technologies have matured sufficiently to support such a requirement.<sup>40</sup> Just last month, for example, AT&T posited that “software translation technologies are sufficiently mature to effectively support the translation of WEA alerts into the most commonly spoken languages” and recommended that “translation beyond English and Spanish use the software translation capabilities provided by mobile device operating systems.”<sup>41</sup> CSRIC VIII also reports that “[w]ith improvements in language translation technology, there is an opportunity to provide WEAs in the user-preferred language via language translation.”<sup>42</sup> Machine translation technologies such as Google Cloud Translation and Apple Translate are pre-installed on many WEA-capable mobile devices.<sup>43</sup> A device-level API to leverage these applications could make WEA messages accessible to every major language group in the U.S.<sup>44</sup> A machine translation application could access an English-language WEA message before it is presented to the subscriber by using this API, translate the English-language alert into the device’s preferred language, and then present the translated alert instead of or in addition to the English-language version. We seek comment on the technical feasibility of this approach and on any other considerations for implementing machine translation technology.<sup>45</sup> Currently,

(Continued from previous page)

Nassau County Office of Emergency Management, Comments, PS Docket No. 15-91, at 1 (Dec. 8, 2016) (Nassau County OEM Comments); New York City Emergency Management Department, Comments, PS Docket Nos. 15-91 and 15-94, at 10 (Rec. Dec. 8, 2016) (NYCEM Comments); City and County of San Francisco Department of Emergency Management, Comments, PS Docket No. 15-91, at 2 (Rec. Dec. 8, 2016); *see also* FCC Disability Advisory Committee, Comments on Improving Wireless Emergency Alerts and Community-Initiated Alerts, PS Docket No. 15-91, at 3 (Rec. June 17, 2016) (recognizing the importance of multilingual alerting) (DAC 2016 WEA Comments).

<sup>40</sup> When the Commission last sought comment on the accuracy of machine translation in 2016, commenters suggested the technology was not mature enough for use in emergency communications. *See* Apple 2016 Reply Comments at 6 n.21; AT&T 2016 Comments at 16-17; NCMC 2016 *Ex Parte* at 2; NYCEM 2016 *Ex Parte* at 3.

<sup>41</sup> Letter from Rhonda J. Johnson, Executive Vice President, Federal Regulatory Affairs, AT&T, to Jessica Rosenworcel, Chairwoman, FCC, at 4-5 (Rec. Feb. 27, 2023) (stating “[w]e believe that software translation technologies are sufficiently mature to effectively support the translation of WEA alerts into the most commonly spoken languages” and “[i]n the future . . . [an] alert could be broadcast in English and automatically translated into the default language for the user’s device by a WEA application”). *See also* Letter from Chemu Langat, Chief Operating Officer and Vice President, Quality and Regulatory, Best Buy Health, Inc., to Jessica Rosenworcel, Chairwoman, FCC, at 3 (Rec. Feb. 27, 2023) (“[b]ased upon input from our technical teams, we believe it is possible that machine translation technologies could be leveraged to translate emergency alert messages into commonly spoken languages . . . our technology teams have not opined on whether existing machine translation technologies operate with a high-enough degree of accuracy to safely enable multilingual WEAs”); Darah Franklin, Counsel, Google North America Inc., to Jessica Rosenworcel, Chairwoman, FCC, at 2 (Rec. Feb. 27, 2023) (“machine translations technologies can be used to scale translation capabilities, but accuracy and reliability varies across ML-based translation providers/implementations.”).

<sup>42</sup> Communications Security, Reliability, and Interoperability Council VIII, Report on WEA Application Programming Interface at 23 (Mar. 2023), <https://www.fcc.gov/file/25058/download>.

<sup>43</sup> *See* Google Cloud Translation AI, <https://cloud.google.com/translate> (last visited Feb 28, 2023); Apple, iPhone User Guide, <https://support.apple.com/guide/iphone/translate-text-voice-and-conversations-iphd74cb450f/ios> (last visited Feb. 28, 2023).

<sup>44</sup> *See* Darah Franklin, Counsel, Google North America Inc., to Jessica Rosenworcel, Chairwoman, FCC, at 2 (Rec. Feb. 27, 2023).

<sup>45</sup> Improvements in the accuracy and reliability of machine-based automatic translation technology also may have implications for expanding the distribution of emergency information over the Emergency Alert System (EAS) in languages other than English, as the Commission has noted in the past. *See, e.g., Amendment of Part 11 of the Commission’s Rules Regarding the Emergency Alert System; Wireless Emergency Alerts*, Notice of Proposed Rulemaking, PS Docket Nos. 15-91, 15-94, FCC 16-5, 31 FCC Rcd 594, 637-38, para. 94 (2016) (seeking comment

(continued....)

Participating CMS Providers transmit Spanish-language versions of WEA messages created by alerting authorities so that they may be presented in addition to the English language version. As CSRIC VIII explained, “[i]f multiple additional languages are included in the WEA broadcast, capacity limits may not allow for the expected behavior of the WEA system in the case of a crisis scenario with multiple live alerts in three or more languages.”<sup>46</sup> Should WEA messages presented in other languages also be presented in addition to, rather than instead of, the English-language version?

13. We propose to require the WEA-capable mobile devices that Participating CMS Providers sell to support the presentation of emergency alerts in the 13 most commonly spoken languages in the United States, in addition to English: Spanish, Chinese, Tagalog, Vietnamese, Arabic, French, Korean, Russian, Haitian Creole, German, Hindi, Portuguese, and Italian.<sup>47</sup> Best Buy Health/Lively suggests that the Commission should “identify a specific group of commonly spoken languages to which WEAs will be expanded.”<sup>48</sup> We seek comment on whether we have identified the right set of languages for WEA to support.

14. We seek comment on the accuracy of machine translation technologies for these languages. Are there languages that, due to the accuracy and ease of machine translation, should be added to the list above?<sup>49</sup> For which languages does machine translation perform most accurately and reliably? We invite commenters to submit information identifying the languages for which sufficiently accurate machine translation technology is currently available and estimating the number of years until the technology for machine translation of other languages will be sufficiently mature for this purpose. What metric(s) are commonly used to describe the accuracy of machine translation technologies? How accurate must machine translation be to effectively convey emergency information?

15. We also seek comment on whether existing mobile devices in the marketplace today have the capacity to support machine translation software. Would subscribers need to purchase new devices to benefit from machine translation for WEA? We seek comment on steps that we can take to eliminate obstacles to consumer access to machine translation for WEA messages. In addition to (or in lieu of) installing machine translation software on consumers’ devices, could such software or functionality be

(Continued from previous page) \_\_\_\_\_

on “the state of technology for machine-generated translation . . . to provide emergency alerts in non-English languages, . . . whether and how such technology could be leveraged by both the EAS and WEA systems[,]” and whether “such translators [could] be incorporated into EAS equipment”); *Review of the Emergency Alert System*, Order, EB Docket No. 04-296, FCC 16-32, 31 FCC Rcd 2414, 2418, para. 7 & n. 21 (2016) (noting efforts to “develop[] multilingual translation solutions for EAS equipment” and questioning “whether these solutions currently include automatic, reliable speech-to-speech translation”).

<sup>46</sup> Communications Security, Reliability, and Interoperability Council VIII, Report on WEA Application Programming Interface at 20 (Mar. 2023).

<sup>47</sup> U.S. Census Bureau, *DP02 | Selected Social Characteristics in the United States* (2021), <https://data.census.gov/cedsci/table?q=DP02#>; Sandy Dietrich and Erik Hernandez, *Language Use in the United States: 2019*, pages 8, 14-15 (2022), <https://www.census.gov/content/dam/Census/library/publications/2022/acs/acs-50.pdf>; see also US Census Bureau, *The 2020 Census Speaks More Languages* (Mar. 9, 2020), <https://www.census.gov/newsroom/press-releases/2020/languages.html>. Roughly 78% of the U.S. population primarily speaks English, 13.5% primarily speak Spanish, and 5% primarily speak one of the other twelve listed here. See Sandy Dietrich and Erik Hernandez, *Language Use in the United States: 2019*, pages 8, 14-15 (2022), <https://www.census.gov/content/dam/Census/library/publications/2022/acs/acs-50.pdf>.

<sup>48</sup> Letter from Chemu Langat, Chief Operating Officer and Vice President, Quality and Regulatory, Best Buy Health, Inc., to Jessica Rosenworcel, Chairwoman, FCC, at 3 (Rec. Feb. 27, 2023).

<sup>49</sup> See Darah Franklin, Counsel, Google North America Inc., to Jessica Rosenworcel, Chairwoman, FCC, at 2 (Rec. Feb. 27, 2023) (stating that machine-translation technology can be used to scale translation technologies but that accuracy varies).

deployed in Participating CMS Providers' networks or elsewhere in the framework for generating and distributing WEA messages?

16. *Template-based alerts.* We seek comment on alternative approaches to promoting multilingual WEA. We observe that the New York City Emergency Management Department supports multilingual alerting in 13 different languages in addition to English through its Notify NYC application. This application presents an English-language message, along with a link to 13 other pre-scripted translations. These alert message translations have been written by people fluent in the languages and vetted with native speakers from language communities.<sup>50</sup> This allows alerts to reach communities of people who otherwise may not understand the alerts they receive. We seek comment on whether this approach could be supported by Participating CMS Providers and/or handset vendors in a modified manner that would eliminate the need to click on a URL. Instead, the pre-scripted translations for the most common alerts could be pre-installed and stored in the mobile device itself. These templates would be “activated” by a data element included in alert message metadata, which would prompt the mobile device to display the relevant template alert message in the mobile device’s default language chosen by the consumer. We seek comment on which messages should be translated and pre-loaded into WEA firmware, and into which languages they should be translated. Could devices offered by Participating CMS Providers support the presentation of the most common alert messages in the 13 most commonly spoken languages in the United States in this manner?<sup>51</sup> Could this be achieved by translating the most common alerts into these 13 languages and storing those translations at the device?<sup>52</sup> In the event that a mobile device is configured with a default language preference other than one for which a translation exists, could the device default to displaying the alert in English?

17. We observe that Google and the United States Geological Survey (USGS) have partnered to deliver ShakeAlert earthquake early warning system messages to Android Mobile devices by supporting communication that triggers Android mobile devices to display alert content pre-installed on the mobile device.<sup>53</sup> We seek comment on whether this approach would enable multilingual alerting and

---

<sup>50</sup> See, e.g., Pacific ADA Center, Webinar: FEMA Promising Practice: Strategies for Effective Communication with People who are Deaf or Hard of Hearing in Emergencies, Transcript (Jul. 14 2016), [https://adapresentations.org/doc/7\\_14\\_16/Transcript\\_7\\_14\\_16.pdf](https://adapresentations.org/doc/7_14_16/Transcript_7_14_16.pdf); Letter from William H. Johnson, Senior Vice President, Verizon, to Jessica Rosenworcel, Chairwoman, FCC, at 2-3 (Rec. Feb. 27, 2023), <https://www.fcc.gov/ecfs/search/searchfilings/filing/10227186202891> (with updated standards and handset/OS vendor support “nothing in wireless networks would preclude devices from performing those functions”).

<sup>51</sup> U.S. Census Bureau, *DP02 | Selected Social Characteristics in the United States* (2021), [https://data.census.gov/cedsci/table?q=DP02#\\_](https://data.census.gov/cedsci/table?q=DP02#_) Sandy Dietrich and Erik Hernandez, *Language Use in the United States: 2019*, pages 8, 14-15 (2022), <https://www.census.gov/content/dam/Census/library/publications/2022/acs/acs-50.pdf>; See also US Census Bureau, *The 2020 Census Speaks More Languages* (Mar. 9, 2020), <https://www.census.gov/newsroom/press-releases/2020/languages.html>.

<sup>52</sup> Letter from Chemu Langat, Chief Operating Officer and Vice President, Quality and Regulatory, Best Buy Health, Inc., to Jessica Rosenworcel, Chairwoman, FCC, at 2 (Rec. Feb. 27, 2023), <https://www.fcc.gov/ecfs/search/search-filings/filing/1022730060888> (“we believe it would be possible to build pre-scripted WEA messages that are displayed based on the language setting the device user has selected. We estimate that the development work necessary to build such pre-scripted messages would be significant, and we note that collaboration with parties responsible for mobile device operating systems would be key to enabling WEAs in a multitude of languages”); Letter from William H. Johnson, Senior Vice President, Verizon, to Jessica Rosenworcel, Chairwoman, FCC, at 2-3 (Rec. Feb. 27, 2023); <https://www.fcc.gov/ecfs/search/search-filings/filing/10227186202891> (stating that, with updated standards and handset/OS vendor support, “nothing in wireless networks would preclude devices from performing those functions.”).

<sup>53</sup> Google, *How Android Earthquake Alerts System Works*, <https://crisisresponse.google/android-alerts/> (last visited Feb. 16, 2023).

simultaneously alleviate industry concerns about bandwidth limitations.<sup>54</sup> We seek comment on whether a data element would be able to be transmitted with a relatively small bandwidth.<sup>55</sup>

18. We also observe that Dr. Jeanette Sutton, University of Albany, has been funded by the Department of Homeland Security to create a Message Design Dashboard that enables alerting authorities to quickly craft template alerts from prefabricated message elements.<sup>56</sup> If the message elements that the Message Design Dashboard uses to create alert and warning messages were translated into languages other than English and stored at the mobile device, could mobile devices automatically translate this prefabricated alert message content? We also seek comment on whether there any other technological or practical approaches that would enable alerting authorities to deliver alert messages in languages that they do not, themselves, speak.

19. *American Sign Language.* We seek comment on whether and how WEA might be improved to provide support for American Sign Language (ASL). Would a significant number of deaf and hard-of-hearing people benefit from having WEA messages presented in ASL format on their mobile devices in lieu of the conventional text format used for WEA messages?<sup>57</sup> Could a pre-scripted, template-based approach work for ASL? Can video content be compressed for storage on the mobile device?<sup>58</sup> Are there any other feasible solutions for ASL?

20. *Text-to-speech.* Many people with vision disabilities, including elderly people, rely on text-to-speech functionality to make text more accessible. While the WEA system does not incorporate text-to-speech functionality at present, many blind and low-vision subscribers may already have screen reading (text-to-speech) functionality installed on their mobile devices. We seek comment on the extent to which such applications are in use and on whether they can generate audible versions of WEA messages. CSRIC VIII recommends that WEA be enhanced to speak the name of the type of hazard to which a WEA message pertains in English and/or the user preferred language when the WEA message is presented on the device.<sup>59</sup> We seek comment on whether Participating CMS Providers could support a text-to-speech functionality for the name of the hazard to which a WEA message pertains. Would this limited text-to-speech capability provide equal access to emergency information for those that rely upon it? Could Participating CMS Providers support text-to-speech for other alert message elements, like the geographic area to which the alert message applies or the entire WEA message? Could Participating CMS Providers support this text-to-speech functionality in English, Spanish, and other languages? We seek comment on the accuracy and reliability of such text-to-speech technologies and on whether the resulting audible information is comprehensible to most listeners. We invite commenters to identify the languages for which acceptable text-to-speech applications are currently available and those for which

---

<sup>54</sup> See *Improving Wireless Emergency Alerts and Community-initiated Alerting*, PS Docket Nos. 15-91 and 15-94, Report and Order and Further Notice of Proposed Rulemaking, 31 FCC Rcd 11112 (2015) (addressing comments regarding concerns about bandwidth and network congestion).

<sup>55</sup> For the purposes of this FNPRM, we contemplate that this data element has minimal impact on industry network capabilities and bandwidth limitations.

<sup>56</sup> See Dr. Jeannette Sutton, *Writing Effective Messages: The Message Design Dashboard*, FEMA – Wireless Emergency Alerts, <https://jeannettesutton.com/current-projects-1> (last visited Mar. 16, 2023).

<sup>57</sup> Telecommunications for the Deaf and Hard of Hearing et al, Reply Comments, PS Docket Nos. 15-91 and 15-94, at 3 (Rec. Jan. 9, 2017) (“Contrary to popular public perception, ASL is not derived from English, nor any spoken language. Instead, it is an independent linguistic system with morphological and grammatical complexity comparable to or exceeding that of spoken languages.”)

<sup>58</sup> See, e.g., ASL Emergency Alert System, Signtel Inc., <https://www.signtelinc.com/asl-emergency-alert-system.html> (last visited Feb. 18, 2023) (describing how text typed into the software can be translated into sign language and shown on video in real time).

<sup>59</sup> Communications Security, Reliability, and Interoperability Council VIII, Report on WEA Application Programming Interface at 29 (Mar. 2023).

they are not. Can such technologies be tailored to generate information that can be understood by people who speak languages in different regional dialects or accents?<sup>60</sup> Would text-to-speech enable people with vision disabilities to understand and act on the alerts they receive more readily? How should the risk that relying on text-to-speech functionality for WEA alert messages might yield confusing mispronunciations be weighed against the public benefits of vulnerable populations receiving alert messages? Would a template-based approach to supporting multilingual alerting facilitate the use of text-to-speech technologies because it would allow stakeholders an opportunity to verify the audio conversion of pre-fabricated messages for accuracy and accessibility?

## 2. Improving WEA's Effectiveness with Multimedia Content

21. We propose to require support for certain multimedia content in WEA messages and to sunset aspects of our existing WEA message requirements to free up bandwidth to support this capability. Alerting authorities currently do not have the ability to send multimedia content through WEA, despite a robust record demonstrating their desire to do so. Alerting authorities state that the ability to send multimedia content would improve emergency planning and response,<sup>61</sup> provide additional information during emergencies, personalize threats, improve message comprehension for people with disabilities, and function as a way to reach people who do not speak English.<sup>62</sup> In response, industry has expressed concerns about bandwidth limitations of cellular networks, possible delay of receipt of the alert message, and costs.<sup>63</sup> Since the last time the Commission sought comment on these issues, CSRIC VIII issued a report that recommends WEA messages include a link to access "location-aware" maps.<sup>64</sup> A location-aware map would depict the alert's target geographic area and the alert recipient's position in relation to the target area. CSRIC VIII suggests that this enhancement is feasible leveraging current technology and would promote public safety.<sup>65</sup>

22. We propose to require Participating CMS Providers to support the sending of thumbnail-sized images in WEA messages over the air. ATIS' *Feasibility Study for WEA Supplemental Text* finds that Participating CMS Providers could support the transmission of an appropriately formatted, thumbnail-sized image using 0.013 megabytes of data.<sup>66</sup> We seek comment on whether the image format

---

<sup>60</sup> For example, speakers of Cantonese Chinese may not be able to understand a spoken sentence in the Mandarin dialect or vice versa, even though all use the same written form of the language. Similarly, Spanish speakers accustomed to Mexican or Central American accents may find it difficult to follow Spanish spoken in an Argentinian or Castilian accent, and vice versa.

<sup>61</sup> *Wireless Emergency Alert Enhancement FAQs for Authorized Alert Originators*, <https://www.fcc.gov/wireless-emergency-alert-enhancements-faqs-authorized-alert-originators>, (last visited on Mar. 1, 2022).

<sup>62</sup> APCO International, Comments, PS Docket Nos. 15-91 and 15-94, at 3 (Rec. Dec. 8, 2016) (APCO Comments); CalOES Comments at 3; Letter from Francisco Sanchez, Liaison to the Director and Public Information Officer for Harris County Texas HSEM, to Marlene H. Dortch, Secretary, FCC, PS Docket No. 15-91, at 1 (filed July 10, 2017) (Harris County Ex Parte); NCMEC *ex parte* at 2; Nassau County OEM Comments at 1; Letter from Michael E. Gerber, Physical Scientist, Office of Dissemination, NWS, to Marlene H. Dortch, Secretary, FCC, PS Docket No. 15-91, at 4 (filed July 18, 2017) (NWS 2017 Ex Parte); NYCEM Comments at 7-10; *see also* DAC 2016 WEA Comments at 2-3 (recognizing the importance of multimedia messages in alerts).

<sup>63</sup> ATIS Comments at 7; AT&T Reply Comments at 4; ATIS Comments at 7-8; CTIA Comments at 9; Microsoft Comments at 6-7; T-Mobile Comments at 2-4, 8-9; Verizon, Comments, PS Docket Nos. 15-91 and 15-94, at 4 (Rec. Dec. 8, 2016).

<sup>64</sup> Communications Security, Reliability, and Interoperability Council VIII, Report on WEA Application Programming Interface at 26 (Mar. 2023).

<sup>65</sup> *Id.*

<sup>66</sup> ATIS, *ATIS Feasibility Study for WEA Supplemental Text*, ATIS 0700026 (2015) (contemplating that a thumbnail-sized photo of about 1.5"x1.5" with a resolution of 72 dots per inch (DPI) will produce an image of 120x120 pixels and that if 8-bit color scale is used, then a digital image file will be about 14,400 bytes (0.013 megabytes) in size).

contemplated by ATIS would minimize the burden that transmission of such data would impose on Participating CMS Providers while providing sufficient resolution to be accessible on modern mobile device displays. The National Center for Missing and Exploited Children (NCMEC) has long advocated for the Commission to enable them to transmit a thumbnail-sized image of a missing child within the body of a WEA alert, noting that “in those cases in which AMBER Alert is credited for the safe rescue of a child 89% included a picture and/or vehicle and license plate information.”<sup>67</sup> Other alerting authorities support this proposal because of its “obvious helpful implications.”<sup>68</sup> The Commission has received complaints indicating that the public may be finding that AMBER Alerts that do not contain an image of a missing child do not meaningfully enable the public to assist in the search for that child.<sup>69</sup> Industry commenters generally oppose this proposal because of concerns about incompatibility with the cell broadcast method used for WEA and latency.<sup>70</sup> Microsoft recommends that transmission of thumbnail-sized photos “should be permitted only after applicable standards have been developed and only for AMBER Alerts which, while time sensitive, are better positioned than other types of emergency warnings to tolerate a 60-second latency.”<sup>71</sup> We seek comment on how long the delay caused by including a thumbnail-sized photo would be. Alerting authorities often use embedded references in WEA messages to direct the public to a website that contains information about a missing child, but the additional effort needed to click through a link to learn more about a child abduction and possible concerns over the legitimacy of embedded links may prevent many people from rendering assistance. Moreover, the web servers on which alerting authorities host emergency information often become congested, rendering their information unavailable.<sup>72</sup> We tentatively conclude that including a picture of a missing child in the body of an AMBER Alert will make WEA AMBER Alerts significantly more attention-grabbing and, as a result, motivate more people to more effectively render assistance to law enforcement to search for a missing child. We seek comment on this view.

---

<sup>67</sup> Letter from Linda Krieg, Acting Chief Executive Officer, National Center for Missing & Exploited Children, to James Wiley, Attorney Advisor, Public Safety and Homeland Security Bureau, FCC, at 3 (May 1, 2015); National Center for Missing and Exploited Children, Comment, PS Docket No. 15-91, at 2 (rec. Jan. 13, 2016), <https://www.fcc.gov/ecfs/document/60001375619/1> (“Beyond text, NCMEC is acutely aware that photos fill a vital role in the search for missing children. Wherever possible, it is standard for NCMEC to include a photograph of the missing child for every other type of missing child alert, message, bulletin, notice, and poster that NCMEC disseminates. As noted in NCMEC’s earlier comments, the vast majority of recent AMBER Alerts that contributed to the successful recovery of an abducted child featured license plate information or a photo of the child, or both. Although this same content could be provided without significant technical adjustments through text-only WEA messages that include a URL linked to the AMBER Alert website, NCMEC also supports the ability to add images, maps, or other multi-media content to WEA messages in the future, which also could greatly enhance the immediate usefulness of AMBER Alerts.”); Letter from Preston Findlay, Counsel, NCMEC, to Marlene H. Dortch, Secretary, FCC, PS Docket No. 15-91 et al., at 2 (filed July 6, 2017); Letter from Preston Findlay, Counsel, NCMEC, to Marlene H. Dortch, Secretary, FCC, PS Docket No. 15-91 et al., at 2 (filed May 24, 2016), <https://www.fcc.gov/ecfs/search/search-filings/filing/1070698168870>.

<sup>68</sup> NWS Comments at 2; NYCEM Comments at 7; Lower Colorado River Authority (Austin, TX), Llano County, TX, Travis County, TX, City of Austin, TX, Austin Water Utility, TX, Caldwell County, TX, Blanco County, TX, Colorado County, TX, Williamson County, TX, Bastrop County, TX, Fayette County, TX, Matagorda County, TX, Burnet County, TX, Wharton County, TX, Hays County, TX, Comments, PS Docket Nos. 15-91, 15-94, and OET 16-127, at 1 (Rec. Dec. 8, 2016).

<sup>69</sup> See Email from Richard Witte to the Public Safety Support Center (Mar. 15, 2023).

<sup>70</sup> AT&T Comments at 14-15; T-Mobile Comments at 8; Verizon Comments at 4.

<sup>71</sup> Microsoft Comments at 6-7.

<sup>72</sup> See FEMA IPAWS, Tip #29: WEA and the Web (Aug. 2020), [https://www.fema.gov/sites/default/files/2020-09/fema\\_ipaws-tips\\_08-2020.pdf](https://www.fema.gov/sites/default/files/2020-09/fema_ipaws-tips_08-2020.pdf).

23. Such multimedia displays might yield benefits for WEAs concerning a broad range of emergencies beyond AMBER alerts. APCO states that, more broadly “providing more detailed information about an emergency through embedded multimedia would help reduce milling behavior and duplicative 9-1-1 calls.”<sup>73</sup> We seek comment on use cases other than AMBER Alerts where alerting authorities could improve the public’s response to alerts and warnings by including thumbnail-sized images in their WEA messages, and whether the tradeoffs for bandwidth, latency, and other considerations would support this use.

24. We propose to free up bandwidth on the cell broadcast channel over which Participating CMS Providers have chosen to transmit alert messages. Are there any steps that can be taken to continue to provide active mobile devices that are incapable of receiving 360-character maximum alert messages with access to WEA while still freeing up bandwidth? For example, should we sunset the requirement to transmit a 90-character-maximum version of alerts in addition to the 360-character-maximum version? If adopted, by the time this rule becomes effective, we believe that the percentage of active mobile devices that are incapable of receiving 360-character alert messages is likely to be negligible. We seek comment on this proposal and on this view. Would this reduce the total number of bits needed to transmit an alert message? Could those bits be reallocated to other WEA functionalities, such as the transmission of thumbnail-sized images? We also seek comment on any other bandwidth saving measures that could be implemented to more effectively allocate available bandwidth.

25. We also propose to require Participating CMS Providers to support the presentation of “location-aware maps” in WEA messages. When the Commission last sought comment on this issue in 2016, alerting authorities were in favor of including location-aware maps in WEA messages to personalize alerts and bolster awareness.<sup>74</sup> Industry commenters did not oppose.<sup>75</sup> CSRIC VIII observes that “maps are commonly used to depict alert location across a variety of alert dissemination methods (e.g., TV, social media)” and states that presenting WEA alert messages via mapping applications on the device “could help the recipient better understand the boundaries of the Alert Area and the device’s location relative to the Alert Area.”<sup>76</sup> CSRIC VIII concludes that location-aware maps should be incorporated into WEA such that alert message “text is immediately displayed and an additional option to display a WEA map is provided.”<sup>77</sup> The map displayed by the native application would be enhanced by the target area information already included in WEA messages so that consumers could more easily comprehend that the alert message is intended for them and that they should promptly take responsive action. There would be no need for Participating CMS Providers to transmit additional information over the air to support this functionality. Would this approach of providing consumers with a link allowing them access to a location-aware map alleviate industry’s concerns about bandwidth limitations? We seek comment on the benefits of including location-aware maps in WEA messages without having to transmit map data over the air. Are there any other technological approaches that could be taken to achieve this result?

---

<sup>73</sup> APCO 2016 Comments at 3.

<sup>74</sup> *WEA R&O*, 31 FCC Rcd at 11195, para. 131; APCO 2016 Comments at 3; CalOES 2016 Comments at 3; Nassau County OEM 2016 Comments at 1; Letter from Michael E. Gerber, Physical Scientist, Office of Dissemination, NWS, to Marlene H. Dortch, Secretary, FCC, PS Docket No. 15-91, at 4 (filed July 18, 2017) (NWS 2017 Ex Parte) (“The NWS wishes to reiterate the need for WEA to display a map of the recipient’s location relative to the threat area. This is necessary in order to better personalize the threat and increase the likelihood that people in the path of the threat take decisive life-saving action.”); NYCEM 2016 Comments at 8.

<sup>75</sup> ATIS 2016 Comments at 7-8; AT&T 2016 Reply Comments at 4; CTIA 2016 Comments at 9; Microsoft 2016 Comments at 6-7; T-Mobile 2016 Comments at 2-4, 8-9; Verizon 2016 Comments at 4.

<sup>76</sup> Communications Security, Reliability, and Interoperability Council VIII, Report on WEA Application Programming Interface at 11 (Mar. 2023).

<sup>77</sup> *Id.* at 11-15, 26.

26. In our discussion of multilingual alerting above, we seek comment on whether it is feasible for Participating CMS Providers to support the transmission of a data element that triggers mobile devices to display pre-installed, translated alert content. Could this same technological approach be leveraged to prompt mobile devices upon receipt of a WEA alert to display other media content pre-installed on the mobile device, such as infographics? Alerting authorities ask the Commission to enable them to send infographics that, for example, show alert recipients how to shelter in place.<sup>78</sup> We note that the National Weather Service has created many potentially beneficial infographics relating to weather-based emergencies,<sup>79</sup> such as guidelines to be followed before and during tornados, hurricanes, and floods.<sup>80</sup> We seek comment on whether support for infographics would increase WEA's ability to prompt people to take protective actions during emergencies more quickly and effectively. What other media could be pre-installed on mobile devices and presented upon a receipt of a WEA message or signal that would improve public safety outcomes when events threaten life and property?

27. We seek to refresh the record on whether Participating CMS Providers could enable WEA messages to include a symbol set designed for emergency communications, such as that developed by the National Alliance for Public Safety GIS (NAPSG) Foundation and endorsed by FEMA IPAWS.<sup>81</sup> When the Commission sought comment on these issues in 2016 and 2018,<sup>82</sup> alerting authorities favored this proposal, stating that hazard symbols would “allow for quicker comprehension and therefore increase accessibility, including for individuals who are deaf, hard of hearing, deafblind, and deaf with mobility issues.”<sup>83</sup> FEMA IPAWS states that “symbols can help make public alerts and warnings more effective for people with disabilities, those with limited English proficiency, and the whole community.”<sup>84</sup> Industry commenters have historically opposed this proposal because of concerns about incompatibility with the cell broadcast technology used for WEA, questions about the utility of symbols, and the need for

---

<sup>78</sup> Calhoun CEMA 2016 Comments at 2-3 (“... images could potentially include evacuation maps, instructions for protective action such as shelter-in-place, etc.”); NYCEM 2016 Comments at 7-8 (“NYCEM may not be able to adequately describe emergency instructions (even to English speakers), including an infographic that provides such information would be helpful and potentially lifesaving”).

<sup>79</sup> *Tornado Infographics*, [https://www.weather.gov/wrn/tornado\\_infographics](https://www.weather.gov/wrn/tornado_infographics), (last visited on Nov. 17, 2022); *Hurricane Infographics*, [https://www.weather.gov/wrn/hurricane\\_infographics](https://www.weather.gov/wrn/hurricane_infographics), (last visited on Nov. 17, 2022); *Flood Infographics*, [https://www.weather.gov/wrn/flood\\_infographics](https://www.weather.gov/wrn/flood_infographics), (last visited on Nov. 17, 2022).

<sup>80</sup> See, e.g. *Tornado Sheltering Guidelines*, [https://www.weather.gov/images/wrn/Infographics/tornado\\_sheltering\\_guidelines.png](https://www.weather.gov/images/wrn/Infographics/tornado_sheltering_guidelines.png) (last visited on Feb. 27, 2023); See, e.g. *Assemble Disaster Supplies*, [https://www.weather.gov/images/wrn/Infographics/hurricane\\_assemble\\_supplies.png](https://www.weather.gov/images/wrn/Infographics/hurricane_assemble_supplies.png) (last visited on Feb. 27, 2023); See, e.g. *Coastal Flooding*, <https://www.weather.gov/images/wrn/Infographics/coastal-flooding-infographic.jpg> (last visited on Feb. 27, 2023).

<sup>81</sup> See NAPSG Foundation, Symbol Library, <https://www.napsgfoundation.org/all-resources/symbology-library/> (last visited Mar. 1, 2023); FEMA IPAWS, Tip #36: The IPAWS Symbol Set, <https://www.napsgfoundation.org/all-resources/symbology-library/> (last visited Mar. 1, 2023); see also NextGen Video Information Systems Alliance, Visually Integrated Display Symbology (2020), [https://www.nvisa.org/files/ugd/0ddb93\\_d8a48ee7679442038238ecdd869852e7.pdf](https://www.nvisa.org/files/ugd/0ddb93_d8a48ee7679442038238ecdd869852e7.pdf).

<sup>82</sup> See 2016 WEA R&O and FNPRM at 11193-95 paras. 129-31; *Parties Asked to Refresh the Record on Facilitating Multimedia Content in Wireless Emergency Alerts*, PS Docket Nos. 15-91 and 15-94, Public Notice, 33 FCC Rcd 2919 (2018).

<sup>83</sup> See, e.g., Consumer Groups and DHH-RERC 2016 Reply Comments at 5; see also Telecommunications for the Deaf and Hard of Hearing, Inc. et al, Reply Comments, PS Docket Nos. 15-91 and 15-94, at 5 (Rec. Jan. 9, 2017) (Consumer Groups and DHH-RERC Reply Comments); National Weather Service, Comments, PS Docket Nos 15-91 and 15-94, at 2 (rec. Dec. 1, 2016).

<sup>84</sup> See FEMA IPAWS, Tip #36: The IPAWS Symbol Set, <https://www.napsgfoundation.org/all-resources/symbology-library/> (last visited Mar. 1, 2023).

consumer education,<sup>85</sup> but CSRIC VIII recommends that “WEA message presentation include a standardized symbol representative of the event,” and recommends that ATIS, public warning risk communications experts, and social scientists should develop standards and best practices and choose a symbol set to use.<sup>86</sup> If we do require Participating CMS Providers to support the inclusion of symbols in WEA messages, should we require them to support a specific symbol set? If so, which one? As a technical matter, would Participating CMS Providers support symbols by transmitting them over the air or by pre-installing them on mobile devices? As a practical matter, what steps could alerting authorities or federal, state, local, tribal, and territorial government agencies take to educate the public about emergency communications symbols so that their receipt results in rapid comprehension and action? Would it be possible to ensure that graphics and links to images are readable by screen readers for persons who are blind or have low vision?<sup>87</sup>

## **B. Integrating WEA More Seamlessly into People’s Lives**

28. In the decade since WEA launched, alerting authorities have leveraged WEA for new and different types of circumstances. The incidence of active shooter incidents in the United States has risen precipitously.<sup>88</sup> Climate conditions have resulted in wildfires grow more intense and destructive, and hurricanes cause more rainfall and increased coastal flooding.<sup>89</sup> Alerting authorities have turned to WEA to help them to keep their communities safe in the face of these threats.<sup>90</sup> We believe that WEA can and must improve to meet the challenge that evolving threats pose. Accordingly, we propose to allow alerting

---

<sup>85</sup> AT&T Comments at 14-15; Verizon Comments at 4; Wireless RERC & CACP Comments at 8-9 (“in 2016, the Wireless RERC conducted a usability study that included 16 IPAWs approved hazard symbols to determine if message comprehension was impacted by the inclusion of American Sign Language (ASL) and/or symbology. . . . Results indicated that some of the symbols helped with text comprehension. The symbols most often understood included Flood Warning, Hurricane Warning, Tornado Warning. The other symbols were not consistently assigned the same meaning by all participants, indicating that it will be interpreted differently and is not a ‘universal symbol.’ Most importantly, some of the symbols were misinterpreted. For example, the shelter in place symbol which is intended to elicit a behavioral response was interpreted by our participants as ‘It’s a house.’ Additional unknown symbols included Civil Emergency, Evacuation Immediate, and Hazardous Materials. We found that participants recognized symbols only for events that typically happen near them and none of the participants understood that ‘All Clear’ meant that the emergency was over. From this preliminary study, we concluded that user outreach and education would be integral to the utility of the symbology”).

<sup>86</sup> Communications Security, Reliability, and Interoperability Council VIII, Report on WEA Application Programming Interface at 29 (Mar. 2023).

<sup>87</sup> The FCC has strongly encouraged following the Web Content Accessibility Guidelines published by the World Wide Web Consortium’s Web Accessibility Initiative. *See* WCAG, 2.1 Understanding Docs, “Images of Text (Level AA),” <https://www.w3.org/WAI/WCAG21/Understanding/images-of-text.html> (last visited Mar. 8, 2023); *see* FCC Consumer Advisory Committee, CG Docket No. 22-2, Recommendation Regarding Consumer Broadband Labels, at 3 (Rec. Apr. 26, 2022); American Council of the Blind, CG Docket No. 22-2, Comments (Rec. Mar. 9, 2022); *Empowering Broadband Consumers Through Transparency*, CG Docket No. 22-2, Notice of Proposed Rulemaking, FCC 22-7, para. 27 n.42 (2022) (describing W3C standards).

<sup>88</sup> *See* Nikk Ogasa, *Mass Shootings and Gun Violence in the United States are Increasing*, ScienceNews (May 26, 2022), <https://www.sciencenews.org/article/gun-violence-mass-shootings-increase-united-states-data-ualde-buffalo>.

<sup>89</sup> Angela Colbert, *A Force of Nature: Hurricanes in a Changing Climate*, NASA (Jun. 1, 2022), <https://climate.nasa.gov/news/3184/a-force-of-nature-hurricanes-in-a-changing-climate/>; USGS, *Wildfire and Climate Change*, <https://www.usgs.gov/science-explorer/climate/wildfire> (last visited Mar. 2, 2023).

<sup>90</sup> *See, e.g.*, Becky Metrick, *Did you get an emergency alert from Dauphin County? Here’s Why*, PennLive Patriot News (Jan. 6, 2023), <https://www.pennlive.com/news/2023/01/did-you-get-an-emergency-alert-from-dauphin-county-heres-why.html>; Government of the District of Columbia, *COVID-19 Wireless Emergency Alerts (WEA)*, <https://coronavirus.dc.gov/wea> (last visited Mar. 2, 2023).

authorities more flexibility in how WEA messages are presented to accommodate different emergencies, while ensuring that people with disabilities are afforded access to information. We also propose measures to prevent unnecessary consumer opt-out and facilitate more effective public awareness testing. We seek comment on these proposals and on any additional measures that the Commission can take to ensure that WEA is a suitable tool to mitigate loss of life and property damage during today's most serious emergencies.

### 1. Allow Alerting Authorities More Flexibility in how WEA Messages Are Presented

29. The Commission's WEA rules do not give alerting authorities control over how mobile devices present the WEA audio attention signal or the vibration cadence.<sup>91</sup> The mandatory presentation of the WEA audio attention signal and vibration cadence could prevent the use of WEA during an active shooter scenario, where the attention signal and vibration could draw the attacker's attention to those who need to stay hidden to stay safe.<sup>92</sup> The mandatory presentation of these signals might also result in user annoyance and WEA opt-out, particularly where WEA is used in connection with a public health crisis such as the COVID-19 pandemic.<sup>93</sup> Accordingly, we propose to require that Participating CMS Providers be able to send WEA messages, at the alerting authority's option, without triggering the audio attention signal and the vibration cadence.<sup>94</sup> We seek comment on the relative benefits and burdens of this proposal, if adopted. Would providing alerting authorities the ability to customize how WEA messages are sent (e.g., with or without the WEA audio attention signal and/or vibration cadence) make WEA safer to use during active shooter events and less intrusive (and thus more versatile) to use during public health emergencies or other less emergent but nevertheless important public safety situations?<sup>95</sup> We seek

<sup>91</sup> 47 CFR §§ 10.520, 10.530.

<sup>92</sup> See *id.*; Erin B. Logan, Anya Kametz, *Should The Parkland Shooting Change How We Think About Phones, Schools and Safety*, National Public Radio, (Feb. 17, 2018), <https://www.npr.org/sections/ed/2018/02/17/586534079/should-the-parkland-shooting-change-how-we-think-about-phones-schools-and-safety> (last visited Feb. 8, 2023) (“The sound of the phone, whether ringing or on vibrate, could alert an assailant to a hiding place.”).

<sup>93</sup> Gregory S. Schneider and Erin Cox, *Virginia's emergency alert on coronavirus vaccine availability startles some*, (Apr. 20, 2021), [https://www.washingtonpost.com/local/coronavirus-dc-virginia-maryland/2021/04/20/6937167e-a204-11eb-a7ee-949c574a09ac\\_story.html](https://www.washingtonpost.com/local/coronavirus-dc-virginia-maryland/2021/04/20/6937167e-a204-11eb-a7ee-949c574a09ac_story.html) (an emergency alert about COVID-19 was effective in getting the public to visit Virginia's vaccine information website, but also resulted in complaints from startled consumers who thought the alert signal meant there was an urgent emergency, such as one Tweet stating “I thought Nukes were incoming or something”); see also Elizabeth Ellcessor, *COVID-19 Messages Make Emergency Alerts Just Another Text in the Crowd on Your Home Screen*, (Jun. 10, 2021), <https://www.nextgov.com/ideas/2021/06/covid-19-messages-make-emergency-alerts-just-another-text-crowd-your-home-screen/174613/> (“Traditionally, emergency alerts are sent to phones in a given area only in very serious circumstances . . . use of a technology designated for emergencies effectively declares an emergency, and when people believe they are in the midst of an emergency they often change their feelings and behavior”); See Erik Pedersen, *‘Walking Dead’, ‘Jimmy Kimmel Live’ & Others Hit With FCC Fines For “Misusing” Emergency Alert Tones*, (Aug. 15, 2019), <https://deadline.com/2019/08/fcc-fines-walking-dead-jimmy-kimmel-live-others-hit-with-fcc-fines-for-misusing-emergency-alert-tones-1202669390/> (noting the FCC disallows the use of EAS tones for non-emergencies due to concerns about alert fatigue).

<sup>94</sup> 47 U.S.C. § 1201(a); *cf.* 47 CFR §§ 10.520; 10.530 (adopting, without discussion of the Commission's WARN Act authority, requirements precluding both Participating CMS Providers and equipment manufacturers from marketing of mobile devices that are incapable of presenting the WEA audio attention signal and vibration cadence).

<sup>95</sup> See Letter from Avi Primo, Celltick Technologies, to James Wiley, Deputy Chief, Cybersecurity and Communications Reliability Division, PS Docket No. 15-91 (Apr. 8, 2021) (“Alerting the mobile devices using the current defined handset behavior, which plays the same unique attention signal and vibration cadence on the mobile device regardless of the threat type, urgency level, or severity might create unnecessary panic situations when several threats are occurred simultaneously at the same area and therefore cannot be distinguished without reading

(continued....)

comment on whether an alert received without the attention signal and/or vibration cadence could fail to grab alert recipients' attention during time-sensitive active shooter situations.

30. We seek comment on steps that the Commission can take to balance the need for alerting authorities to be able to suppress the presentation of the WEA attention signal with the need to present accessible alert messages to people with access and functional needs. In addition to the suppression of the WEA audio attention signal, should alerting authorities be able to suppress the vibration cadence? The WEA vibration cadence may result in a sound that gives away the location of a person in hiding or cause annoyance. It also may be necessary for consumers who are deaf or hard of hearing to know that they have received an emergency alert. Should we limit the suppression of the attention signal and/or the vibration cadence to specific circumstances (e.g., active shooter) situations only, and if so, what should those situations be? Or, should we defer to the alerting authority to best accommodate and balance competing considerations without limitation? If we adopt requirements that WEA support text-to-speech, should alerting authorities also have discretion to suppress this capability? Finally, we ask commenters to identify whether and which standards and/or device-level software or firmware would need to be modified to enable this capability for alerting authorities. We seek comment on whether the 12 months that the Commission has previously allocated for the development of WEA standards would be sufficient for this purpose.<sup>96</sup> If not, why not? We also seek comment on any other technical issues that may arise in implementing this functionality at the mobile device.

## 2. Prevent Unnecessary Consumer Opt-Out

31. We are concerned that members of the public might experience alert fatigue and might be annoyed by WEA's audio attention signal and vibration cadence, leading them to opt out of receiving WEA alert messages entirely.<sup>97</sup> Consumers who have opted out of receiving WEA alert messages have no chance of receiving potentially life-saving emergency instructions through WEA. To remedy this, we propose to require Participating CMS Providers to provide their subscribers with the option to durably turn off WEA's audio attention signal and vibration cadence for all alerts. The Commission's rules allow for consumers to be able to mute the audio attention signal and vibration cadence.<sup>98</sup> In 2016, we sought comment on whether the Commission should require Participating CMS Providers to support consumer choice by allowing consumers to receive WEAs with the audio attention signal and vibration cadence turned off by default as an alternative to opting out of WEA entirely.<sup>99</sup> Microsoft Corporation, California Governor's Office of Emergency Services, and the New York City Emergency Management Department support allowing consumers to change their WEA delivery preferences, including by allowing them to

(Continued from previous page) \_\_\_\_\_  
the warning text shown on the screen. On the other hand, activating the current signal for less urgent alerts may result in people opting out from these alerts.”).

<sup>96</sup> See *WEA R&O*, 31 FCC Rcd at 11177, para. 98.

<sup>97</sup> See *Why would anyone want to turn off government alerts such as emergency notifications and Amber alerts in their iPhone settings? Why is this even an option?*, <https://www.quora.com/Why-would-anyone-want-to-turn-off-government-alerts-such-as-emergency-notifications-and-Amber-alerts-in-their-iPhone-settings-Why-is-this-even-an-option> (last visited on Feb. 10, 2023) (most of the reasons cited for opting out of emergency alerts by Quora users are because of the jarring attention signal); See also Tarun Wadha, *About Those Startling Government Phone Alerts That You Never Signed Up For*, (Aug. 6, 2013), <https://www.forbes.com/sites/tarunwadhwa/2013/08/06/about-those-startling-government-phone-alerts-that-you-never-signed-up-for/?sh=7ee1e9df6666> (last visited Feb. 10, 2023) (complaining about the attention signal).

<sup>98</sup> 47 CFR § 10.520(e); 47 CFR § 10.530(c).

<sup>99</sup> See *Wireless Emergency Alerts; Amendments to Part 11 of the Commission's Rules Regarding the Emergency Alert System*, Report and Order and Further Notice of Proposed Rulemaking, 31 FCC Rcd 11112, 11154-57, para. 157 (2016) (*WEA R&O*).

receive WEAs without the attendant audio attention signal and vibration cadence.<sup>100</sup> We seek to refresh the record on this issue. How do mobile device manufacturers operationalize silencing the WEA audio attention signal and vibration cadence when users set their devices to “do not disturb” mode? What other options do consumers have to personalize the audio attention signal and vibration cadence? We tentatively conclude that Participating CMS Providers should work with mobile device manufacturers to present this option to subscribers in the mobile device’s WEA notification settings in addition to the current, binary choice to opt in or opt out. We seek comment on this approach.

32. We seek comment on whether giving consumers the option to suppress the presentation of the WEA audio attention signal and vibration cadence promotes consumer choice and would make it more likely that people interested in receiving alert messages – but not interested in being interrupted by them – can continue to receive potentially life-saving instructions intended for them.<sup>101</sup> What other public safety and consumer benefits would attend this proposal, if adopted? We note, however, that if the rule is adopted, consumers who have already opted out of receiving alert messages may not be aware that the option to receive alert messages without being interrupted by them is available. How might this information be best shared with the public? Should Participating CMS Providers re-set WEA-capable mobile devices to their default opt-in status as part of their implementation of this proposal? Would they have the technical ability to do so? To what extent would CMS Providers require support from device manufacturers to support such a re-set and update? Could such a re-set take place without affecting other settings on a user’s device (e.g., location)? Should the customer be made aware of the attempted re-set, and if so, how? We seek comment on any alternatives that would help to ensure that the public is able to yield the public safety benefits of this proposal.

33. We seek comment on whether there are additional reasons why consumers commonly opt out of receiving WEA messages. Currently, when consumers receive an alert, some mobile device operating systems present the alert together with an option for the consumer to go to their WEA notification settings, where the only option presented is opt-out. Does this operating system functionality promote unnecessary WEA opt-out? We seek comment on alternative ways in which unnecessary consumer opt-out can be mitigated or prevented.

### 3. Facilitate More Effective WEA Public Awareness Exercises

34. We seek comment on whether our current rules governing State/Local WEA tests are impeding the ability of emergency managers to fully understand how WEA operates within their unique jurisdictions and circumstances and to engage in important public awareness exercises. At present, our rules authorize Participating CMS Providers to transmit a State/Local WEA Test message, which consumers must affirmatively opt in to receive.<sup>102</sup> Alerting authorities thus cannot conduct an end-to-end

---

<sup>100</sup> See *Comments of the New York City Emergency Management Department*, (Dec. 8, 2016), PS Docket Nos. 15-91 and 15-94, para. 32 (“NYCEM also agrees with commenters that, in certain circumstances, consumers should have the ability to set receipt preferences.”); see Comment, Microsoft, PS Docket Nos. 15-91 and 15-94, page 8 (“Allowing consumers to fine-tune when and how they wish to receive the different types of alerts will encourage greater consumer participation in the system.”); see Comment, California Governor’s Office of Emergency Services page 1 (“Cal OES support the proposed rule’s proposal to maintain a user-accessible list of previous alerts for 24 hours within WEA devices, including those that have expired.”).

<sup>101</sup> The average American checks their cellphone 344 times per day, about once every four minutes, so consumers muting the attention signal should not have an overly negative impact on how quickly they can receive emergency information. Trevor Wheelwright, *2022 Cell Phone Usage Statistics: How Obsessed Are We?*, (Jan. 24, 2022), <https://www.reviews.org/mobile/cell-phone-addiction/>. Prior to COVID-19, the average American checked their phone 96 times per day, or about once every ten minutes. Tudor Cibean, *Adults in the U.S. check their phones 352 times a day on average, 4x more often than in 2019*, (Jun. 5, 2022), <https://www.techspot.com/news/94828-adults-us-check-their-phones-352-times-day.html>.

<sup>102</sup> 47 CFR § 10.350. Specifically, the Commission’s rules require Participating CMS Providers to participate in monthly tests initiated by the Federal Emergency Management Agency and in periodic tests of WEA’s C-Interface.

(continued....)

WEA test, where members of the public receive the test message by default, without receiving a waiver of the Commission's rules. In contrast, the Commission's rules allow EAS Participants to participate in two Live Code Tests per calendar year, provided that the entity conducting the test takes specified actions to make clear that the alert being sent is only a test.<sup>103</sup> We continue to believe that State/Local WEA Tests are valuable tools for system readiness testing and proficiency training. To the extent State/Local WEA Tests are used for proficiency training and alerting authorities' system checks alone, the fact that the public does not receive State/Local WEA Tests by default is beneficial. This same attribute, however, prevents State/Local WEA Tests from being useful tools for raising public awareness about how to respond to emergencies that are likely to occur.<sup>104</sup> Over the years, the Commission has granted waivers in certain circumstances to enable alerting authorities to test WEA using alerts that the public receives by default.<sup>105</sup> In assessing these waivers, the Commission has balanced raising awareness about emergencies with protecting against alert fatigue.<sup>106</sup>

35. Based on the experience we have gained from evaluating these waiver requests, we believe we can identify circumstances where it is beneficial for consumers to receive WEA test messages by default without conducting a case-by-case evaluation of waiver requests, going forward. Thus, we propose to authorize Participating CMS Providers to support up to two end-to-end WEA tests (in which consumers receive test messages by default) per alerting authority each year, provided that the alerting authority: 1) conducts outreach and notifies the public in advance of the planned WEA test and that no emergency is, in fact, occurring; 2) includes in its test message that the alert is only a test; 3) coordinates the test among Participating CMS Providers, state and local emergency authorities, relevant State Emergency Communications Committees (SECCs), and first responder organizations; and 4) provides notification to the public in widely accessible formats that the test is only a test. We note these conditions are the same conditions that attend alerting authorities' conduct of EAS Live Code Tests and the Commission has routinely conditioned waiver its rules to conduct public awareness exercises on these criteria.<sup>107</sup> We seek comment on whether we should condition authorization on alerting authorities

(Continued from previous page)

*Id.* On November 1, 2016, the Commission adopted a Report and Order that amended the WEA testing rules to permit emergency managers to conduct end-to-end WEA tests to the public to assess how WEA is working within their jurisdictions. *See WEA R&O* at paras. 65-68; *WEA R&O*, 31 FCC Rcd at 11154-55, para. 65 (requiring Participating CMS Providers to provide their subscribers with the option to receive State/Local WEA Tests, whereby subscribers must affirmatively select the option to receive State/Local WEA Test messages).

<sup>103</sup> 47 CFR § 11.61(a)(5) (requiring entities conducting Live Code Tests to notify the public before the test in widely-accessible formats that live event codes will be used, but that no emergency is, in fact occurring; states in the test message that the event is only a test; and coordinates the test among EAS Participants, state and local emergency authorities, the relevant state emergency communications committees (SECC), and first responder organizations).

<sup>104</sup> Lisa M. Fowlkes, *Emergency Alert Testing Matters*, (Oct. 2, 2018), <https://www.fcc.gov/news-events/blog/2018/10/02/emergency-alert-testing-matters> (“[live code tests] . . . can increase the proficiency of local alerting officials while educating the public about how to respond to actual alerts”).

<sup>105</sup> *See, e.g., Wireless Emergency Alert Performance Testing Wireless Emergency Alerts Amendments to Part 11 of the Commission's Rules Regarding the Emergency Alert System*, PS Docket Nos. 22-160, 15-91, and 15-94, Order, DA-22-901, (2022); *Wireless Emergency Alerts Amendments to Part 11 of the Commission's Rules Regarding the Emergency Alert System*, PS Docket Nos. 15-91 and 15-94, Order, DA-22-850, (2022); *Improving Wireless Emergency Alerts and Community-Initiated Alerting Amendments to Part 11 of the Commission's Rules Regarding the Emergency Alert System*, PS Docket Nos. 15-91 and 15-94, 36 FCC Rcd 12734 (2021).

<sup>106</sup> *See Improving Wireless Emergency Alerts and Community-Initiated Alerting Amendments to Part 11 of the Commission's Rules Regarding the Emergency Alert System*, PS Docket Nos. 15-91 and 15-94, 35 FCC Rcd 1527, para. 6 (2020) (stating that the State/Local WEA test category was adopted to prevent consumers from “alert fatigue.”).

<sup>107</sup> 47 CFR § 11.61(a)(5).

conducting certain types of outreach or on the outreach being completed a certain period of time before transmitting the test. We also seek comment on whether, as an additional condition to conduct public awareness exercises, alerting authorities should have to keep records on how they comply with the above-mentioned four conditions, and produce these records if requested by a Participating CMS Provider or the Commission. We believe that, by authorizing Participating CMS Providers to support up to two tests per alerting authority each year without filing waiver requests or obtaining our permission in advance, we can reduce unnecessary administrative burdens on alerting authorities, CMS Providers, and ourselves, and thereby eliminate a potential obstacle to conducting end-to-end WEA tests that advance several public interest goals. We seek comment on this proposal and on whether the same conditions that are appropriate for EAS tests are also relevant for such WEA system tests. We further propose that alerting authorities issue these WEA tests as “Public Awareness Tests” to make clear that the test messages will be sent to the public by default.<sup>108</sup>

36. We seek comment on the benefits and costs of this proposal. Would this amendment of our rules facilitate more seamless joint exercises of EAS and the WEA system?<sup>109</sup> Would they make the WEA system a more powerful tool for proactively warning the public in advance of emergencies, ultimately preparing them to take more effective protective actions in the event that an emergency actually occurs? We also seek comment on how this amendment of the rules may affect alert fatigue. Are the proposed rules restrictive enough to mitigate potential alert fatigue? Recognizing that alerting authorities may have overlapping jurisdictions (*e.g.*, a city, within a county, within a state), should we limit the number of tests to two per county (or other geographic area) per year, to ensure that alerting authorities coordinate with one another to prevent alert fatigue for their citizens? Are there any additional conditions or alternatives that could make WEA a more effective tool for raising public awareness about emergency situations likely to occur while mitigating the risk of alert fatigue?

**C. Establishing a WEA Database to Promote Transparency about WEA Availability and Benchmark WEA Performance**

37. We propose to modernize the WEA election process and facilitate access to WEA availability and performance information through the development of a Commission-hosted WEA Database. At present, to access information about WEA’s availability in their jurisdictions, alerting authorities and the public must review all of the WEA election letters filed with the Commission. Even then, those letters are often unclear about whether a Participating CMS Provider participates in whole or in part and their level of support for WEA geographically and on different types of mobile devices. We anticipate that the WEA Database would be an interactive portal where CMS Providers submit information about the availability and performance of WEA on their networks, and where such information could be readily accessible to both alerting authorities and the public.

**1. Reporting Information about WEA Availability**

38. We propose to require all CMS Providers, irrespective of whether they elect to transmit WEA messages, to report their level of WEA participation in a WEA Database. In order for the WEA Database to be effective in providing a full understanding of WEA coverage, we propose the database should identify which CMS Providers offer WEA, in what geographic areas, and on which devices. In addition, this information must be current.

39. *Identify which wireless providers offer WEA.* We propose to require that CMS Providers identify whether they elect to participate in WEA in whole or in part, or whether they elect not to participate. If a CMS Provider elects to participate in part or not to participate at all, we propose that they

---

<sup>108</sup> See Appendix A.

<sup>109</sup> The Bureau has received requests for waiver to support end-to-end tests of WEA and the EAS in the past. See *e.g.*, *Wireless Emergency Alerts; Amendments to Part 11 of the Commission’s Rules Regarding the Emergency Alert System*, PS Docket Nos. 15-91 and 15-94, Order, DA 22-1359 (2022).

provide an explanation or basis for this decision using free form text. CMS Providers should submit their election in the WEA Database regardless of whether they have previously filed in the docket. We propose that CMS Providers should also identify the entities on behalf of which they are filing. We seek comment on this proposal. It is often difficult for the Commission and alerting authorities to know which service providers are participating in WEA because CMS Providers take inconsistent approaches to disclosing the names of subsidiary companies on behalf of which their election is filed, any “doing business as” names under which they are offering services that support WEA, and the names of Mobile Virtual Network Operators (MVNOs) and wireless resellers through which their network supports WEA.<sup>110</sup> Should this responsibility be limited to entities with which CMS Providers have a contractual relationship? Are there any other relationships a CMS Provider’s WEA election should capture to better identify wireless providers’ WEA participation status? This proposed requirement would make WEA elections more uniform and provide a more complete picture of WEA’s availability nationwide. To ease the burden of this proposal, the WEA Database would leverage any relevant information that is available through existing Commission systems like the Commission Registration System (CORES).<sup>111</sup> We seek comment on the burdens such proposals would impose upon CMS Providers and on any alternative approaches that the Commission could take to accurately identify the universe of the entities that participate in WEA.

40. *Identify where WEA is offered.* We propose to require CMS Providers to disclose the extent to which they offer WEA in the entirety of their geographic service area. We seek comment on this proposal. When CMS Providers elect to transmit WEA messages “in part” today, those elections often provide little information about what “in part” means as a practical matter. For example, they rarely specify whether there are geographic areas excluded from their WEA coverage. This could lead to confusion about the extent to which the public receives WEA messages. This is problematic from the standpoint of an alerting authority trying to plan for how it will reliably communicate with the public during an emergency. For example, during this past wildfire season, alerting authorities and the Commission struggled to identify whether the non-delivery of WEA alert messages in New Mexico was due to service degradation or the Participating CMS Providers’ choice not to transmit WEA alert messages in the affected counties.<sup>112</sup> Would information about the geographic areas where CMS Providers support WEA be helpful to alerting authorities during situations like the New Mexico wildfires?

41. For CMS Providers that report in the WEA Database that they are participating in WEA in whole, we propose to represent their geographic service area using the voice geographical information system (GIS) coverage area, which CMS Providers submit to the Commission as their mobile voice coverage area in the biannual Broadband Data Collection (BDC).<sup>113</sup> We believe that the voice channel coverage area is a conservative estimate of the control channel which is used to deliver the WEA coverage. The estimate is conservative because voice communication has a higher bandwidth requirement than data transferred over the control channel, resulting in a smaller coverage area than the control channel. We believe that this conservative estimate may be appropriate to avoid misleading

---

<sup>110</sup> Currently, some MVNOs have elected to transmit alert messages, but the Commission does not have election information for many others. See PS Docket No. 08-146, [https://www.fcc.gov/ecfs/search/search-filings/results?q=\(proceedings.name:\(%2208-146%22\)\)](https://www.fcc.gov/ecfs/search/search-filings/results?q=(proceedings.name:(%2208-146%22))).

<sup>111</sup> See Commission Registration System for the FCC, <https://www.fcc.gov/licensing-databases/commission-registration-system-fcc> (last visited Mar. 28, 2023).

<sup>112</sup> See Andrew Hay, ‘Huge firefight’ to defend New Mexico villages, city from blaze, Reuters (May 2, 2022), <https://www.reuters.com/world/us/residents-new-mexico-town-prepare-evacuate-amid-wildfire-2022-05-01/>.

<sup>113</sup> Federal Communications Commission Broadband Data Collection Help Center, Formatting Mobile Voice Availability Coverage Maps, <https://help.bdc.fcc.gov/hc/en-us/articles/6047464151195-Formatting-Mobile-Voice-Availability-Coverage-Maps> (June 22, 2022).

consumers into thinking they will receive a WEA where they will not. We seek comment on this approach. For those CMS Providers that do not support WEA through their entire geographic service area, we propose to require them to submit a GIS polygon coverage area that most accurately represents their WEA coverage area. We seek comment on whether these proposals would represent a cost-effective and accurate approach to reporting WEA availability, in a manner that would be readily understood by other stakeholders. Do the cost savings for Participating CMS Providers attendant to using a voice coverage shapefile already on file with the Commission outweigh the potential public safety benefit of a more precise representation of a WEA coverage area? Would a source of geospatial data other than shapefile be either less burdensome to produce or more beneficial to alerting authorities? We seek comment on any alternative ways of reporting this information and their associated benefits and costs.

42. Does information about the geographic availability of WEA need to be supplemented with additional information about WEA delivery to be useful to alerting authorities? For example, because our WEA rules require Participating CMS Providers to support WEA for roaming subscribers, would it be a more helpful representation of a WEA coverage area if Participating CMS Providers submitted a shapefile describing their WEA coverage area and any additional areas where they have a roaming agreement with another Participating CMS Provider?<sup>114</sup> Do Participating CMS Providers have access to such information from roaming partners in the first instance? If not, we seek comment on whether to require Participating CMS Providers to provide a list of their roaming partners via the WEA database to allow the database to compile that coverage area information. Further, it is unclear from the record whether mobile assets (e.g., cells on wheels (COWs), cells on light trucks (COLTs)) deployed to compensate for cell site outages were provisioned into providers' WEA systems. During emergencies, cell facilities that normally would be capable of transmitting WEA messages to a certain geographic area might not be available to do so. Should CMS Providers who file reports in the Disaster Information Reporting System (DIRS) regarding a particular emergency also include information about whether any COWs and COLTs deployed support WEA?<sup>115</sup> We seek comment on the benefit to alerting authorities of knowing whether COWs/COLTs deployed in their area support WEA. Would the value of this information be enhanced if Participating CMS Providers also disclosed the location of those deployable assets? Should CMS Providers report if they do not support WEA when using certain network technologies (e.g., a CMS Provider sends WEA messages on its 5G network, but not its 3G network)? Are there other kinds of information about WEA availability that CMS providers should be required to report, and if so, how would that information assist alerting authorities in protecting the public? We also seek comment on how this information, if required, should be reported to ease burdens and promote uniformity in reporting. For example, for network technology information, should CMS Providers be presented with simple checkboxes to indicate whether they offer WEA on all deployed generations of wireless network technology or on all available deployable mobile assets? Should the Commission use Participating CMS Providers' technology specific shapefiles submitted as part of the BDC for this purpose?

---

<sup>114</sup> See 47 CFR § 10.470.

<sup>115</sup> See FCC, Disaster Information Reporting System, <https://www.fcc.gov/general/disaster-information-reporting-system-dirs-0> (last visited Mar. 3, 2023) (stating that DIRS activations typically precede an anticipated major emergency, like a major hurricane, or follow an unpredictable disaster and that the FCC announces DIRS activations through public notices and emails to DIRS participants). We note that with limited exceptions, reporting in DIRS is currently voluntary, although pending before the Commission is a proposal to make reporting mandatory by certain providers. See *Resilient Networks; Amendments to Part 4 of the Commission's Rules Concerning Disruptions to Communications; New Part 4 of the Commission's Rules Concerning Disruptions to Communications*, PS Docket No. 21-346 and 15-80; ET Docket No. 04-35, Report and Order and Further Notice of Proposed Rulemaking (June 27, 2022); see also *The Uniendo a Puerto Rico Fund and the Connect USVI Fund*, et al., WC Docket Nos. 18-143, 10-90 and 14-58, Report and Order and Order on Reconsideration, 34 FCC Rcd 9109, at para 138 (Sept. 30, 2019) (DIRS filing is mandatory for Stage 2 recipients of the Bringing Puerto Rico Together Fund and the Connect USVI Fund).

43. *Identify which devices support WEA.* Like geographic area, “in part” WEA elections rarely share information about the mobile devices that are capable of receiving WEA messages. While this information is provided by CMS Providers at the point of sale,<sup>116</sup> it is prohibitively difficult for alerting authorities to aggregate that information from all possible points of sale, including by third-party retailers. For this reason, we propose to require Participating CMS Providers to report in the WEA Database all mobile devices that the Participating CMS Provider currently offers for sale that are WEA-capable. We seek comment on this proposal. By collecting this information in a uniform way in a single database, we believe that alerting authorities will be better able to understand how WEA messages will be received by individuals in their jurisdiction and better able to determine if WEA is an appropriate tool for their emergency communications needs. For example, would this information help alerting authorities to understand the deployment status of new WEA capabilities, the availability of which may be dependent on Participating CMS Providers’ and equipment manufacturers’ decisions about whether to support deployed mobile devices with software updates? Most Participating CMS Providers do, though, maintain public online information relating to device WEA capabilities. How can we avoid creating confusion in light of the already existing public information? We note that our proposal, if adopted, would not shed light on the WEA capabilities of the installed base of mobile devices that connect to the Participating CMS Provider’s network but are not sold by the Participating CMS Provider at the time of reporting. Does this create a predictable gap in alerting authorities’ and the Commission’s understanding of WEA’s availability? How could Participating CMS Providers provide alerting authorities and the Commission with visibility into WEA capabilities of the mobile devices operating on the Participating CMS Provider’s network but that they do not sell? Do all versions of a given make and model of mobile device have the same WEA capabilities, irrespective of where they are sold? Or, does a mobile device’s WEA capabilities depend on firmware specific to Participating CMS Providers? We seek comment on any alternative approaches that might further reduce reporting burdens. We particularly encourage commenters to address other ways the Commission may leverage data CMS Providers already submit to the Commission to alleviate any burden attendant to reporting this information.

44. To modernize our rules and better support this proposed reporting requirement, we propose to update the definition of what constitutes a “WEA-capable mobile device.” We observe that as WEA’s capabilities have evolved over the last several years, the definition of what is considered a WEA-capable mobile device has not evolved with it. As a result, mobile devices have continued to be considered “WEA-capable” even if they do not support the capabilities that have become central to WEA’s effectiveness, such as supporting a 360-character message length or the inclusion of URLs. We are concerned that if the term “WEA-capable” continues to include any mobile device with at least partial WEA functionality, consumers might be confused and mistakenly believe that all “WEA-capable” mobile devices offer all WEA capabilities. Accordingly, we propose to amend our rules to define a “WEA-capable mobile device” as a mobile device that is compliant with the Part 10, Subpart E equipment requirements, and to make explicit that WEA-capable mobile devices must support the alert message requirements in Part 10, Subpart D (e.g., support for the alert message classifications, national alert prioritization, WEA message elements, the 360-maximum character limit, geo-targeting, roaming, and support for both English- and Spanish-language alerts).<sup>117</sup> We seek comment on this proposal. We also seek comment on any alternative approaches.

45. The Commission’s rules currently define a “mobile device” for the purpose of WEA as “[t]he subscriber equipment generally offered by CMS providers that supports the distribution of WEA Alert Messages.”<sup>118</sup> We observe that this definition does not account for mobile devices that do not

---

<sup>116</sup> See 47 U.S.C. § 1201(b)(1) (requiring CMS Providers who elect, in whole or in part, “not to transmit emergency alerts to subscribers to provide clear and conspicuous notice at the point of sale of any devices for which its commercial service is included, that it will not transmit such alerts via the service it provides for the device”).

<sup>117</sup> 47 CFR § 10.400 *et seq.*

<sup>118</sup> See 47 CFR § 10.10(j).

support WEA messages. Accordingly, we propose to update the definition of a “mobile device” for the purpose of WEA as “any customer equipment used to receive commercial mobile service.” We seek comment on this proposal. We believe that this amended definition appropriately acknowledges the possibility that a mobile device does not support WEA, while also being broad enough to potentially include devices that are commonly considered to be mobile devices, such as tablets, wearables, or other non-smartphone devices.<sup>119</sup> This amended definition may also increase access to WEA messages by individuals with disabilities who frequently rely on these devices for connecting to wireless services.<sup>120</sup> Individuals with mobility or dexterity disabilities may find smaller devices too difficult to use; thus, these devices may accommodate those with such disabilities.<sup>121</sup> We seek comment on whether these devices are capable of receiving WEAs. Would providing WEA to data-plan-enabled tablets and other devices that receive commercial mobile service allow individuals with disabilities (e.g., individuals that lack the manual dexterity required to manipulate a smaller device) to receive WEA messages for the first time?<sup>122</sup>

46. *Provide current information.* We propose to require that CMS Providers update the WEA Database within 30 days of a change in their WEA participation. Currently, our rules do not require CMS Providers to update their WEA election status when the nature of their WEA service profile changes and, in fact, most CMS Providers have not updated their election to transmit alert messages since filing their initial election in 2008. As a result, we are concerned that many WEA elections could now be outdated and do not accurately reflect WEA’s current availability. We propose that a 30-day timeframe reflects an appropriate balance between affording CMS Providers adequate time to submit an update and providing stakeholders current information on WEA availability. We seek comment on this proposal. Rather than requiring that CMS Providers update their WEA elections within 30 days of a change in their participation, should updates be required periodically, irrespective of updates based on a change in their participation? If so, how often should those updates be required? The BDC requires filers to update their filings biannually (i.e., twice each year).<sup>123</sup> Would this biannual update approach work for WEA or would this result in alerting authorities frequently accessing outdated information in the WEA Database that undermines their emergency communication efforts? Alternatively, if changes to WEA availability are made infrequently, would a biannual filing be unnecessary?

## 2. Improving WEA’s Performance to Make it a More Effective Life-saving Tool

---

<sup>119</sup> See *id.*; also *cf.* *Amendment of the Commission’s Rules Governing Hearing Aid-Compatible Mobile Handsets*, WT Docket No. 07-250, Policy Statement and Second Report and Order and Further Notice of Proposed Rulemaking, 25 FCC Rcd 11167, 11192-11200 paras. 74-93 (2010) (defining a mobile device for the purpose of hearing aid compatibility as “customer equipment used to provide wireless voice communications over any type of network among members of the public or a substantial portion of the public via a built-in speaker where the equipment is typically held to the ear”).

<sup>120</sup> See *Telecommunications for the Deaf and Hard of Hearing, Inc., et al., Comments to the Notice of Proposed Rulemaking*, PS Dockets No. 15-94 and 15-91, at 7 (filed May 9, 2016).

<sup>121</sup> See, e.g., *Implementation of Sections 716 and 717 of the Communications Act of 1934, as Enacted by the Twenty-First Century Communications and Video Advancement Act of 2010*, CG 10-213, Biennial Report to Congress, DA 22-1075, para. 11 (Oct. 11, 2022) (discussing new features that allow persons with mobility disabilities to control wireless devices with facial gestures); *id.*, para. 33 (describing Requests of Dispute Assistance filed by persons who have difficulty holding or operating mobile phones).

<sup>122</sup> See *Telecommunications for the Deaf and Hard of Hearing, Inc., et al., Comments to the Notice of Proposed Rulemaking*, PS Dockets No. 15-94 and 15-91, at 7 (filed May 9, 2016).

<sup>123</sup> Federal Communications Commission, Broadband Data Collection, *Data Specifications for Biannual Submission of Subscription, Availability, and Supporting Data* at 7 (Feb. 7, 2023) <https://us-fcc.app.box.com/v/bdc-availability-spec.7>, 2023) <https://us-fcc.app.box.com/v/bdc-availability-spec>.

47. To improve the effectiveness of WEA, and consistent with the recommendations of the GAO,<sup>124</sup> we propose to establish WEA performance minimums that Participating CMS Providers must satisfy for every WEA message they send. Press reports indicate that, due to deficiencies in Participating CMS Providers' implementation of WEA, many people are not receiving critical, timely information during life-threatening and time-sensitive emergencies, such as earthquakes or wildfires, while others are receiving information that is irrelevant to them, which degrades the value of the WEA system as a whole.<sup>125</sup> When people receive alert messages not relevant to their geographic area, they may learn to ignore the WEA messages they receive or they may opt out of receiving WEA messages entirely. It is our understanding that inconsistent WEA performance may have led some emergency management agencies to delay becoming authorized as alerting authorities and may have caused others to limit their use of WEA.<sup>126</sup> Are there other reasons why emergency management agencies may delay becoming authorized as alerting authorities or otherwise limit their use of WEA, such as the costs of establishing and maintaining alerting capabilities with third party vendors? We seek comment on these issues.

48. *WEA Reliability.* To ensure that all WEA-capable mobile devices within a target area receive alerts intended for them, we propose to require Participating CMS Providers to meet a minimum requirement for the reliability with which they deliver WEA messages to their subscribers. We note that our rules already require WEA messages to be delivered to 100 percent of the target area.<sup>127</sup> We are concerned that this requirement is not sufficient to ensure that the public can rely on their Participating CMS Provider to deliver to them promptly the WEA messages intended for them every time, including when they enter the alert's target area after the alert's initial transmission. We seek comment on an improvement to our existing minimum reliability requirement that is technically feasible and generally achievable across circumstances. For example, we seek comment on whether Participating CMS Providers should deliver WEA messages to all WEA-capable mobile devices that are within an alert message's target area at the time the Participating CMS Provider initially transmits the message. We also seek comment on whether Participating CMS Providers should deliver WEA messages to all WEA-capable mobile devices that enter the alert message's target area after the initial transmission, while the alert message is active. This approach would go one step further than our existing requirement by ensuring that the messages delivered to that area to be presented to the subscriber, regardless of whether

---

<sup>124</sup> FCC, Emergency Alerting (103277) Corrective Action Plan at 2 (2020), <https://www.gao.gov/products/gao-20-294>.

<sup>125</sup> See Brianna Sacks, *A dangerous side of America's digital divide: Who receives emergency alerts*, Washington Post (Dec. 21, 2022), <https://www.washingtonpost.com/climate-environment/2022/12/21/weather-alerts-storms-disasters/>; see also Brandon Behle, et al., *Didn't get the nationwide alert? This might be why, and here's how to fix it*, ABC (Oct. 3, 2018), <https://abc7news.com/presidential-alert-system-what-is-a-emergency/4405202/>; Beck Metrick, *Did you get an emergency alert from Dauphin County? Here's Why*, PennLive (Jan 6, 2023), <https://www.pennlive.com/news/2023/01/did-you-get-an-emergency-alert-from-dauphin-county-heres-why.html>; *Utah discontinues wireless emergency alerts at state lines*, Utah.gov (Apr. 13, 2020).

<sup>126</sup> See, e.g., *Who's Using IPAWS – And Who Could Be and Isn't*, HyperReach (Oct. 30, 2020), <https://www.hyper-reach.com/whos-using-ipaws-and-who-could-be-and-isnt/> ("("14 states have an authorized agency at the county level among at least half of their counties. That means that 36 states have less than half their counties using IPAWS. There are 17 states where less than a quarter of county authorities are approved to use IPAWS. Municipal use of IPAWS is growing but is still quite small. There are now 6 states (NH, NV, CA, MA, NM and VA) with 5%+ of municipalities authorized for IPAWS, compared to just 2 three years ago. But that obviously means that the vast majority of cities and towns are not using this tool."); Steve Staeger & Sam Bergum, *Emergency Alert Systems Used Inconsistently Across Colorado Counties*, 9News (July 28, 2022), <https://www.9news.com/article/news/special-reports/9news-originals/colorado-emergency-alert-systems/73-efbe999b-fcfc-4259-a473-9ed81e89f53f>; Steve Staeger & Sam Bergum, *Limitations with Wireless Alert System Complicate Evacuations*, 9News (Feb. 6, 2023), <https://www.9news.com/article/news/local/wildfire/limitations-wireless-alert-system/73-528593e2-5ffc-4aa3-a636-8e4f7ce5a0ad>.

<sup>127</sup> 47 CFR § 10.450(a).

the subscriber is in the target area at the time the alert is transmitted or enter the target area later, provided the alert remains active. Are there any technical challenges that may prevent all devices from receiving and presenting alerts? How can those challenges be addressed?

49. *WEA Accuracy.* The Commission's WEA rules require Participating CMS Providers to deliver WEA messages with no more than 0.1 of a mile overshoot unless, for example, mobile devices have location services disabled or legacy networks and devices could not be updated to support geofencing, in which case Participating CMS Providers are permitted to send an alert to their best approximation of the target area.<sup>128</sup> We seek comment on whether these exceptions to the Commission's existing accuracy requirement remain necessary and, if not, we propose to sunset them. For example, we seek comment on whether WEA-capable mobile devices located more than 0.1 miles outside of a targeted area should suppress alerts for that area, regardless of whether its location services are enabled. We are concerned that this exception may be resulting in considerable WEA overshoot.<sup>129</sup> We seek comment on the extent to which this exception is still necessary for modern WEA-capable mobile devices. Since the Commission adopted its enhanced WEA geo-targeting requirement, industry WEA stakeholders have changed the WEA functionality of mobile devices from being enabled by software to being enabled by firmware. As we have seen in other public safety contexts, even when a consumer disables location services, a CMS Provider may still access that data when necessary (e.g., to support 9-1-1 calling).<sup>130</sup> We seek comment on whether we should require location services to always be enabled for WEA on WEA-capable mobile devices, even if they are disabled for other uses.

50. We also seek comment on whether to eliminate the exception to those same geotargeting rules that exempts legacy networks and mobile devices that cannot be updated.<sup>131</sup> Under this approach, mobile devices could not be considered "WEA-capable" unless they can comply with the geotargeting requirements. We believe this would be consistent with our proposal, discussed in greater detail above, to update the definition of "WEA-capable mobile device" to only include devices that support the alert message requirements in Part 10, Subpart D. We seek comment on this approach, and the likely effect of churn. We seek comment on whether any legacy CMS network facilities cannot be updated to support geofencing. If so, why? On what timeframe do Participating CMS Providers intend to remove these legacy network elements from their facilities?

51. We seek comment on other reasons why WEA-capable mobile devices may be falling short of meeting our existing geo-targeting requirements. Are these shortfalls related to the amount of time mobile devices are allowed to calculate their location before displaying the alert? Why might a mobile device be unable to calculate its location for the purposes of WEA within the permissible period, even when the device's location services are turned on and available to the WEA firmware? Is there another issue or problem with the geofencing solution being used in WEA-capable mobile devices? Alternatively, we invite industry stakeholders to submit test results or studies demonstrating that their devices strike the correct balance between presenting WEA messages in a timely and accurate manner.

52. *WEA Speed.* We propose to require Participating CMS Providers to satisfy minimum speed requirements, to ensure WEA messages are displayed as swiftly as possible during emergencies

---

<sup>128</sup> *Id.*

<sup>129</sup> *See id.*

<sup>130</sup> *Manage your Android device's location settings*, <https://support.google.com/android/answer/3467281?hl=en#:~:text=To%20open%20your%20device's%20Settings,the%20top%20of%20the%20screen.&text=Safety%20%26%20emergency,Location%20Service%20on%20or%20off> (last visited Apr. 5, 2023); *Apple's iOS 12 securely and automatically shares emergency location with 911*, (Jun. 18, 2018), <https://www.apple.com/newsroom/2018/06/apple-ios-12-securely-and-automatically-shares-emergency-location-with-911/>

<sup>131</sup> 47 CFR § 10.450(a).

where every second counts. We seek comment on a minimum speed requirement that is technically feasible and generally achievable across circumstances. For example, we seek comment on whether Participating CMS Providers should present alerts within five minutes on 99% of WEA-capable mobile devices that have not opted out from receiving the alert and are within the target area? Should we measure 5 minutes as the amount of time between receipt of the alert message at the Participating CMS Provider alert gateway and presentation of the alert on the device?<sup>132</sup> We note that the ATIS WEA geofencing standard allows mobile devices to take up to four minutes and fifteen seconds to determine their location before defaulting to displaying the alert.<sup>133</sup> To the extent that some devices may need additional time to confirm their locations, we believe that a requirement of five minutes provides sufficient time to do so. We believe that this approach would acknowledge that there may be localized complexities in the radio frequency environment that may prevent some devices from receiving the first transmission of an alert.<sup>134</sup> Is five minutes the appropriate speed requirement for WEA, and if not, what should that requirement be? Are there any circumstances that may result in significant delay in the time between the transmission of an alert by a Participating CMS Provider and presentation by a WEA-capable mobile device? If so, how should we adjust our WEA speed metric to compensate? On the other hand, should we require more than 99% of opted-in WEA 3.0-capable devices to present WEA alerts within five minutes, and if so, why? Alternatively, we seek comment on the percentage of mobile devices that may be able to display an alert within one second. Would one second from receipt at the Participating CMS Provider alert gateway be an appropriate benchmark for the percentage of mobile devices that already have a location determination at the time they receive a WEA and therefore need to engage in limited additional processing before presenting the alert message? How else could we benchmark WEA's speed to reflect latencies between receipt between Participating CMS Providers?

53. We seek comment on the public safety benefits of requiring Participating CMS Providers to optimize their network's performance to satisfy these performance minimums. Would these performance minimums make WEA a much more effective and dependable emergency communication tool? Would the adoption of these performance minimums cause more alerting authorities to use WEA, or motivate more emergency management agencies to become alerting authorities? If these performance metrics are not the right minimum benchmarks for WEA's performance, how should the Commission benchmark WEA's reliability, accuracy, and speed? We seek comment on any additional WEA performance data regarding how the public is currently receiving alerts and how that data should affect the adoption of minimum WEA performance minimums.

54. *Other WEA Performance Improvements.* As an alternative, or in addition to ensuring WEA's minimum performance as described above, we seek comment on whether to require Participating CMS Providers to take specific measures to improve WEA's reliability. Should we require Participating CMS Providers to retransmit alert messages at one-minute intervals throughout an alert's active period, as AT&T currently does?<sup>135</sup> Other major Participating CMS Providers only broadcast an alert message a single time or a limited number of times after a delay of at least several minutes.<sup>136</sup> We are concerned that this means that people entering the target area after the initial transmission may not receive the alert

---

<sup>132</sup> For devices that enter a targeted geographic area after the initial transmission of the alert, we propose that the five minutes be measured from the time that they entered the target area.

<sup>133</sup> See The Alliance for Telecommunications Industry Solutions, *Wireless Emergency Alerts (WEA) 3.0 Device-Based Geo-Fencing at 10* (2019) (providing standards that permit Participating CMS Providers to choose to wait for any amount of time between zero seconds and 255 seconds (4 minutes and 15 seconds), before giving up on obtaining a location fix on the device and defaulting to presenting the alert message).

<sup>134</sup> See *CSRIC VIII Report on WEA Performance Reporting* at 25 (noting, e.g., that users may turn on devices for the first time while the WEA is active).

<sup>135</sup> FCC, Report: August 11, 2021 Nationwide WEA Test at 18-19 (2021) (2021 WEA Test).

<sup>136</sup> *Id.*

in a timely manner. We seek comment on whether this requirement would improve WEA's reliability, particularly among people that enter an alert's target area during an alert's active period, but after Participating CMS Providers' initial transmission of the alert. We also seek comment in the alternative on whether to require Participating CMS Providers to take specific measures to improve WEA's accuracy. Pursuant to WEA standards, receipt of a WEA message does not necessarily prompt geofencing-capable mobile devices to obtain a fresh location fix. Receipt of a WEA message prompts a geofencing-capable mobile device to determine its location, but if the mobile device has a stored record of its location, the mobile device may use that record rather than obtain a fresh location fix from the network, even if the location information stored on the mobile device is old and inaccurate. We seek comment on whether this is a deficiency in the standard that predictably leads the location information available to WEA to be less accurate than our 0.1 of a mile requirement. Should the message that Participating CMS Providers send to mobile devices to trigger them to obtain a location fix for the purpose of WEA geofencing prompt mobile devices to obtain a fresh location if the location fix that it has is not sufficiently accurate or fresh to comply with our existing WEA accuracy requirement? From where should mobile devices seek to retrieve this location fix (e.g., GPS, A-GPS, device-based hybrid location) to best balance potentially competing concerns about accuracy and network impacts? What other potential technical measures could Participating CMS Providers implement to optimize the WEA system's reliability, accuracy, or speed?

### 3. Reporting Information about WEA's Performance

55. To help measure and enforce compliance with our proposed performance requirements, as well as to help public safety stakeholders understand how WEA works in their respective areas, we propose that Participating CMS Providers submit data to the Commission regarding WEA's reliability, accuracy and speed using the WEA Database. In doing so, we also address and build on the record developed in our 2022 Further Notice of Proposed Rulemaking (2022 *FNPRM*), where public safety commenters argue that performance reporting would directly assist them in using WEA effectively, and that reliability, speed, and accuracy are the most important performance metrics on which Participating CMS Providers should report.<sup>137</sup>

56. For each of the performance areas (reliability, accuracy, and speed), we seek comment on the data set that should be submitted to the Commission, as well as the source of data from which the data set should be derived. In each instance, data submitted should be sufficient to demonstrate compliance with the Commission's performance requirements across a variety of circumstances that reflect real-world conditions. We seek comment on whether this necessitates collecting raw data representing performance on individual mobile devices, or whether there are alternative viable ways to capture WEA performance as experienced by subscribers. What measures would handset manufacturers and OS vendors need to take to capture, store, and provide such information? What are the privacy implications of this proposal for users? Does this proposal raise implications for device manufacturers' security and privacy policies or for device costs? Can CMS Providers access or collect raw data at the device level? Does current technology allow for device manufacturers and Participating CMS Providers to connect location data to a customer's decision to opt-in to WEA participation? We seek comment on whether Participating CMS Providers should submit aggregated data and percentages on the performance of mobile devices as a whole for all alerts, or whether it is feasible to collect performance information from a sample, such as a randomized portion of all mobile devices or data about certain specified alerts. If commenters favor reporting performance information expressed as a percentage, we seek comment on the proposed equations by which Participating CMS Providers would calculate WEA's reliability, accuracy, and speed,

---

<sup>137</sup> See, e.g., APCO International, Comments, PS Docket Nos. 15-91 and 15-94, at 2 (Rec. Jun. 21, 2022) (APCO Comments) ("APCO agrees that gaining insight into the reliability, speed, and accuracy of WEA will help promote its use and effectiveness."); NOAA/National Weather Service, Comments, PS Docket Nos. 15-91 and 15-94, at 2 (Rec. Jun. 21, 2022) (NWS Comments) ("objective information on WEA performance from the wireless industry would be very helpful to the local warning program and formal service assessment.").

as it would be important to adopt uniform equations across all providers.

57. We anticipate that data can be gathered at the device level that is derived from data elements that Participating CMS Providers can potentially log, such as unique alert message identifiers, the geographic target area, and the opt-in status of the device. We seek comment on the following *Figure 2*, which depicts our assessment of where data elements relevant to WEA performance could be available for logging by Participating CMS Providers and WEA-capable mobile devices.

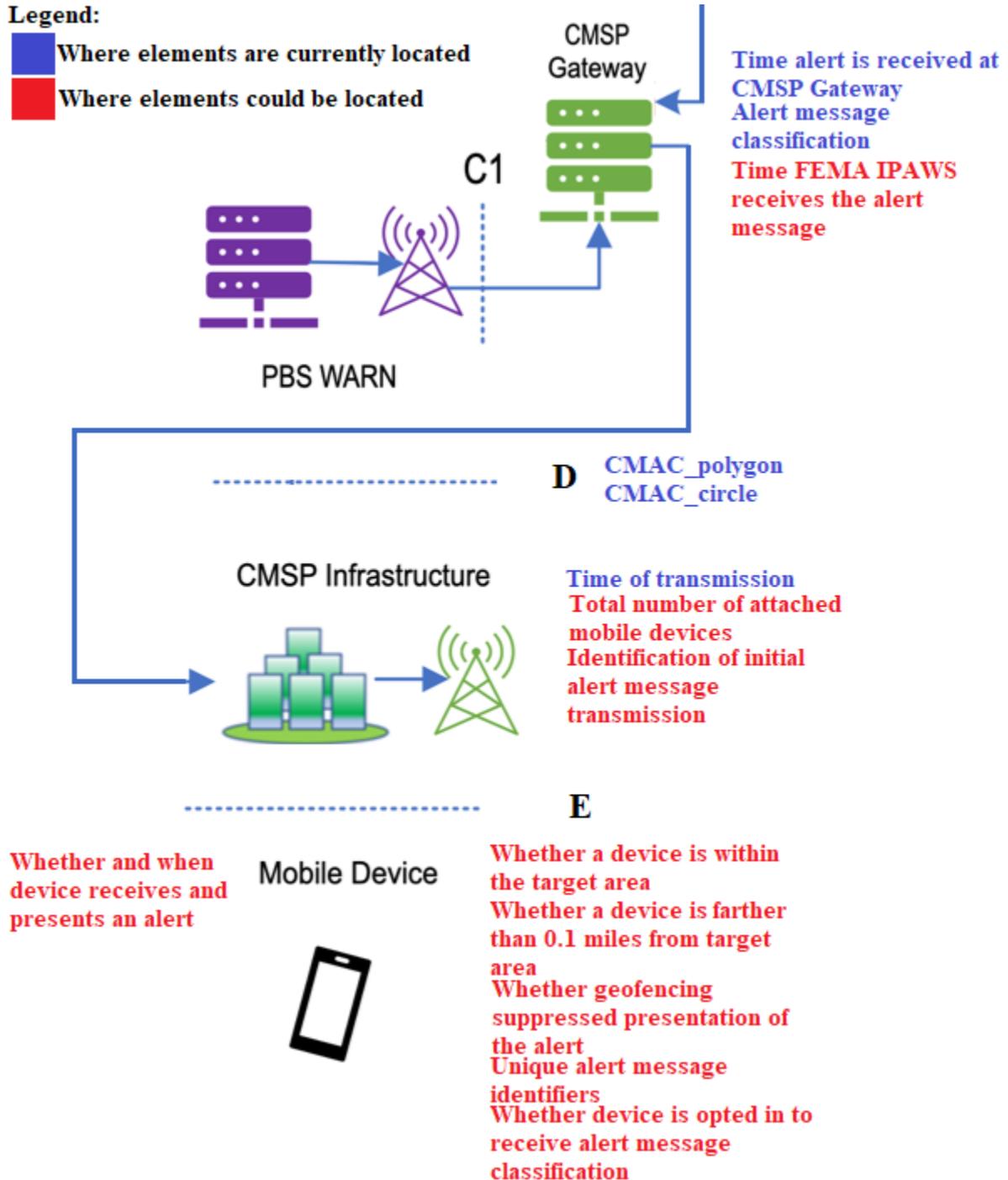


Figure 2: WEA Performance Reporting Architecture and WEA Data Elements

Does *Figure 2* accurately capture the data elements and their respective locations where Participating CMS Providers could potentially log them to measure WEA's performance? Is it technically feasible for Participating CMS Providers to log each of the data elements that currently reside in their network during WEA transmission, because Participating CMS Providers already log many such data elements under our rules?<sup>138</sup> Is it technically feasible for WEA-capable mobile devices to receive a firmware update to enable them to log those data elements described above that are uniquely available at the mobile device, because mobile devices already log data about the tasks they perform as part of routine device processes? We seek comment on potential changes to standards and software that Participating CMS Providers, handset manufacturers, and handset OS vendors would need to complete to comply with this proposal, if adopted. We seek comment on any refinements that would make the collection of WEA performance data less burdensome and/or more effective.

58. We seek comment on how these data elements, as well as other information available to Participating CMS Providers, can be used to demonstrate WEA's performance. One approach would be for Participating CMS Providers to submit data to the Commission's WEA Database regarding the number of WEA-capable mobile devices located inside an alert message's geographic target area that are capable of receiving an alert and opted into sharing WEA performance information; the number of WEA-capable mobile devices located outside an alert message's geographic target area that are capable of receiving an alert (e.g., mobile devices that meet the foregoing criteria and are connected to the cell facility that initially transmits the WEA message); the number of such devices located inside and outside the area that are opted into presenting the alert; and the number of those devices inside and outside of the area that presented the alert. Could the Commission use this data to calculate the percentage of devices in the target area that succeeded at displaying or suppressing an alert? For measuring WEA's speed, one approach would be for Participating CMS Providers to also submit to the Commission's WEA Database the times at which mobile devices received and presented an alert, as well as the time when the alert was received at a Participating CMS Provider's alert gateway. Could the Commission use this data to calculate WEA's speed? Are there any other ways the Commission should use these or other data elements to measure WEA performance?

59. Would Participating CMS Providers face technical challenges in collecting or reporting this information? While CSRIC VIII states that the total number of devices in the alert area is unknown and "cannot be obtained without a complete redesign of existing cellular technology," we observe that a cell site can generate a record, at any given time, of how many mobile devices are attached to it.<sup>139</sup> We seek comment on this assessment. We also seek comment on CSRIC VIII's view that it is not possible for Participating CMS Providers to know the number of devices in a targeted area that have opted into sharing WEA performance data.<sup>140</sup> Is CSRIC VIII correct? What steps could be taken to improve the ability to Participating CMS Providers to obtain this information? CSRIC VIII finds that WEA-capable mobile devices currently do not know whether they are receiving the first WEA broadcast or a later WEA

---

<sup>138</sup> 47 CFR § 10.320(g).

<sup>139</sup> See *CSRIC VIII Report on WEA Performance Reporting* at 23. When a mobile device connects to a cellular facility, it sends a signal that identifies the device to the network. This signal includes information such as the device's International Mobile Equipment Identity (IMEI) number, its location, and other identifying information. Using this information, the cellular network can determine the number of mobile devices attached to a particular cell facility at any given time and their location. Indeed, Participating CMS Providers already can generate and produce an account of the mobile devices attached to cell facilities at a given point in time for law enforcement purposes. Jennifer Lynch, *Massachusetts's Highest Court Upholds Cell Tower Dump Warrant* (May 27, 2022), [https://www.eff.org/deeplinks/2022/05/massachusetts-highest-court-upholds-cell-tower-dump-warrant#:~:text=A%20%E2%80%9Ctower%20dump%E2%80%9D%20occurs%20when,that%20area%20at%20the%20time; see also Commonwealth v. Perry, 489 Mass. 436 \(Mass. 2022\).](https://www.eff.org/deeplinks/2022/05/massachusetts-highest-court-upholds-cell-tower-dump-warrant#:~:text=A%20%E2%80%9Ctower%20dump%E2%80%9D%20occurs%20when,that%20area%20at%20the%20time; see also Commonwealth v. Perry, 489 Mass. 436 (Mass. 2022).)

<sup>140</sup> *CSRIC VIII Report on WEA Performance Reporting* at 24.

broadcast.<sup>141</sup> Could Participating CMS Providers take measures to enable devices to identify the initial transmission?

60. We seek comment on the feasibility of measuring WEA's performance using staged devices, as contemplated by CSRIC VIII.<sup>142</sup> Specifically, could Participating CMS Providers capture actionable information about WEA's performance by conducting regular testing using devices positioned in and around the target area of a Required Monthly Test (RMT)?<sup>143</sup> Could such a testing and performance measurement requirement also leverage State/Local WEA Tests or leverage alerting authority and Participating CMS Provider volunteers? How would the resulting data differ in quality from data derived at the device level from real WEA activations? Would there be any limitations to the public safety benefits of measuring performance using staged devices? We seek comment on whether there would be any cost or time savings attendant to this approach if Participating CMS Providers had to update network and mobile device firmware to measure WEA's performance using staged devices.

61. We also seek comment on any privacy implications if information is collected at the mobile device level. In response to the 2022 *FNPRM*, some commenters raise consumer privacy concerns about the nature of the data that Participating CMS Providers would collect from mobile devices to support a reporting requirement, especially location data.<sup>144</sup> We believe that Participating CMS Providers would not need to collect any personally identifiable information (PII) or customer proprietary network information (CPNI) to provide device-level data.<sup>145</sup> Specifically, Participating CMS Providers would not have to collect precise location information. Rather, each WEA-capable mobile device would potentially have to log and provide to the Participating CMS Provider only whether the device was located inside the target area or farther than 0.1 miles from the target area. We seek comment on this view. We also note that CMS Providers already have access to location information about their customers' mobile devices by virtue of their provision of service.<sup>146</sup> If, contrary to our expectations, CMS

---

<sup>141</sup> *Id.* at 25.

<sup>142</sup> *Id.* at 31-34.

<sup>143</sup> *Id.* at 31-32; 47 CFR § 10.350(a).

<sup>144</sup> AT&T Comments at 8-9; ATIS Comments at 11-12; CTIA Comments at 2; NCTA Reply at 3; T-Mobile Comments at 5; Verizon Reply at 1.

<sup>145</sup> PII is defined as "information that can be used to distinguish or trace an individual's identity, either alone or when combined with other information that is linked or linkable to a specific individual." Office of Management and Budget, Memorandum for Heads of Executive Departments and Agencies, Preparing for and Responding to a Breach of Personally Identifiable Information, M-17-12, at 8 (2017), [https://www.whitehouse.gov/wp-content/uploads/legacy\\_drupal\\_files/omb/memoranda/2017/m-17-12\\_0.pdf](https://www.whitehouse.gov/wp-content/uploads/legacy_drupal_files/omb/memoranda/2017/m-17-12_0.pdf) (OMB M-17-12); see also OMB, to the Heads of Executive Departments and Agencies, Managing Information as a Strategic Resource, Circular No. A-130, Section 10(a)(57) (2016), [https://www.whitehouse.gov/wp-content/uploads/legacy\\_drupal\\_files/omb/circulars/A130/a130revised.pdf](https://www.whitehouse.gov/wp-content/uploads/legacy_drupal_files/omb/circulars/A130/a130revised.pdf). "Because there are many different types of information that can be used to distinguish or trace an individual's identity, the term PII is necessarily broad"; it requires an "assessment of the specific risk that an individual can be identified using the information with other information that is linked or linkable to the individual." OMB M-17-12, at 8. Wireless carriers have access to "highly sensitive" PII about their customers, "especially when location data [are] combined with other types of data." *E.g.*, Letter from Jessica Rosenworcel, Chair, FCC, to John Stankey, Chief Executive Officer, AT&T Services, Inc. (July 19, 2022), <https://www.fcc.gov/document/rosenworcel-probes-mobile-carriers-data-privacy-practices>.

<sup>146</sup> Letter from Joan Marsh, Executive Vice President, Federal Regulatory Affairs, AT&T, to Jessica Rosenworcel, Chairwoman, FCC, at 2, 5 (filed Aug. 3, 2022) ("AT&T Mobility collects network location information from the cellular towers used to power AT&T Mobility's wireless network . . . software, developed and owned by AT&T, is embedded in the firmware of Android devices by original equipment manufacturers . . . collects device diagnostic and location data on a passive basis . . . including latitude/longitude information"); Letter from Kathleen Ham, Senior Vice President, Government Affairs, T-Mobile, to Jessica Rosenworcel, Chairwoman, FCC, at 2-3 (filed Aug. 3, 2022) ("Like all wireless providers, T-Mobile (including Metro) collects several different types of location

(continued....)

providers were required to collect precise location information to satisfy WEA reporting obligations, we would require CMS providers to protect that information subject to the same statutory and regulatory duties that apply to the most sensitive CPNI.<sup>147</sup> We seek comment on this approach. We also seek comment on the other specific data elements that CMS Providers would need to collect to satisfy their reporting obligations and the extent to which the information types collected could be minimized to protect consumer privacy.

62. To further safeguard consumer privacy, in the event we were to proceed with a device-level approach, we propose that Participating CMS Provider should offer subscribers the ability to opt out of participating in the collection of information necessary to measure WEA's performance. We believe that Participating CMS Providers could enable this consumer choice by adding a simple, binary toggle switch to the existing WEA settings menu. We note that, by comparison, CSRIC VIII examines a method of automatically collecting WEA performance data from mobile devices whose users have opted in to share WEA performance analytic data with their wireless provider.<sup>148</sup> Should we affirmatively prohibit Participating CMS Providers from collecting or using precise mobile device location information or any PII or CPNI for purposes of reporting this information to the Commission? Should we require Participating CMS Providers to timely and securely destroy any data gathered solely for the purpose of this collection? Should the mobile devices, Participating CMS Providers, or the WEA Database perform functions to further anonymize the data collected? We seek comment on other potential privacy impact mitigations. Our intent is to ensure that any approach to collecting performance data would not change wireless providers' existing access to mobile device location data or change the compliance status of their existing information collections under applicable privacy laws and regulations. We seek comment on any refinements to our proposals that would further this goal.

63. We seek comment on any alternative approaches to WEA performance reporting. For example, CSRIC VIII also recommends that the FCC consider a requirement for an automated email to convey WEA performance reporting information from Participating CMS Providers to an alerting authority or a centralized reporting location for each sent WEA.<sup>149</sup> We seek comment on the utility of WEA performance information communicated by email directly to alerting authorities, either in addition or as an alternative to a WEA database. CSRIC VIII recommends that the details of this approach be worked out between alerting authorities, PBS, and Participating CMS Providers.<sup>150</sup> We encourage WEA stakeholders to submit a detailed proposals of how this alternative approach could work in practice.

64. *Reporting timeframe.* In what timeframe should Participating CMS Providers collect and submit WEA performance data to the WEA Database? To reduce the risk of wireless service performance degradation during an emergency, should Participating CMS Providers collect and report WEA performance data sufficiently outside of any actual activation of WEA? For example, Participating

(Continued from previous page) \_\_\_\_\_  
information . . . T-Mobile can access the current location of a handset to provide the estimated longitude and latitude . . . in response to either a customer placing a call or sending a text message to 911"); Letter from William H. Johnson, Senior Vice President, Federal Regulatory & Legal Affairs, Verizon, to Jessica Rosenworcel, Chairwoman, FCC, at 2-3 (filed Aug. 3, 2022) ("Verizon Wireless collects the cell site and sector within our network that a mobile device connects to and generates other information regarding the mobile device's relative position to the cell site . . . Verizon Wireless has a small number of Verizon-branded applications for consumer mobile devices that obtain express customer permission to collect device location data . . . [t]his data may be as specific as . . . latitude/longitude coordinates."); *CSRIC VIII Report on WEA Performance Reporting* at 34-35 (noting alert originators view that device location data is already known).

<sup>147</sup> See 47 U.S.C. § 222; 47 CFR part 64 subpt. U.

<sup>148</sup> *CSRIC VIII Report on WEA Performance Reporting* at 21.

<sup>149</sup> *Id.* at 34.

<sup>150</sup> *Id.*

CMS Providers could submit data to the WEA Database within 24 hours of the issuance of the WEA message or State/Local WEA Test to which the performance data pertains. Would it be feasible for Participating CMS Providers to delay collecting WEA performance information until off-peak network hours? CSRIC VIII raises concerns, however, that “[e]ven delayed automated reporting, triggered at a later time, carries that possibility of localized congestion during the reporting period.”<sup>151</sup> What timeframe would strike the right balance between timely performance reporting that provides relevant, actionable information, and the need to protect networks from congestion during actual emergencies?

#### 4. Establishing a WEA Database

65. *Data submission.* We seek comment on the most cost-effective mechanism for CMS Providers to submit WEA elections and performance information into the WEA Database, while minimizing burdens on CMS Providers. We propose that WEA elections and WEA performance data be filed electronically using a web-based interface and, if feasible, an application programming interface (API). In addition to an API, what other tools or features should we consider when designing the data submission elements of the WEA Database to ease reporting burdens and improve efficiency? For example, would Participating CMS Providers prefer to submit information regarding the WEA-capable mobile devices they support either through a file upload or through a form, or should both options be available?

66. *Promote stakeholder understanding.* To promote transparency and address alert originators’ need to better understand WEA performance in their respective areas, we propose to enable the WEA Database to provide information about WEA availability and performance. With respect to WEA availability information, we seek to ensure that the public has access to information about which service providers offer WEA, in which locations, and on what devices, so they are empowered to make the right decisions for their unique needs when they choose a mobile device and service plan. We seek comment on this proposal, and on whether the use of the WEA database is the most effective manner to convey this information.

67. We also seek comment on how the WEA Database can best meet consumers’ and alerting authorities’ need for information about WEA’s performance. To maximize relevance for alert originators, we propose to provide performance data expressed as percentages of mobile devices satisfying our reliability, accuracy, and speed performance standards, and to provide this information on a per provider and per geographic area basis. We seek comment on this approach. For example, with respect to reliability, we propose to provide the percentages of devices that succeeded and failed at presenting the alert. We expect this would help alerting authorities better understand how many people within their jurisdictions would receive an alert, which would inform their decisions about how to use WEA in conjunction with other emergency communication tools. For accuracy, we propose to provide the percentages of devices outside of the geographic target area that failed to suppress the alert. We expect this would help alerting authorities better understand the extent of WEA message overshoot, which we expect would inform their future decisions about how to best target their alerts. For speed, we propose to provide the percentiles of time that CMS Providers take to both ensure an alert’s receipt as well as the alert’s presentation on mobile devices, following the CMS Provider’s receipt of the alert at their alerting gateway (i.e., the 10<sup>th</sup>, 25<sup>th</sup>, 50<sup>th</sup>, 90<sup>th</sup>, and 99<sup>th</sup> percentile time figures). We expect this would help alerting authorities better understand how quickly their alerts reach the public, which would inform their future decisions about the optimal times to send alerts and whether delays in the delivery of those alerts warrant the supplementary use of other emergency communication tools. We propose that alerting authorities be able to use the WEA Database to see WEA’s performance both for their own activations and nationwide so that they can better contextualize any performance issues they may experience. We believe this approach would provide up-to-date information about WEA and thereby greatly improve alerting authorities’ visibility into WEA. The database would allow alerting authorities to better

---

<sup>151</sup> *Id.* at 30.

understand WEA's reach when planning whether and how to use WEA during emergencies, thus increasing its value as a tool to protect life and property.

68. To avoid disclosing information that Participating CMS Providers may consider to be competitively sensitive, we do not propose to use the WEA Database to disclose the number of WEA-capable mobile devices that are located within the alert message's geographic target area at the time the Participating CMS Provider initially transmits the message or the number of WEA-capable mobile devices connected to cell facilities transmitting the alert message that are located farther than 0.1 miles outside of the message's geographic target area at the time the Participating CMS Provider initially transmits the alert message. We seek comment on this approach. We anticipate that using a dedicated database would be more efficient than the current practice of searching for WEA elections that have been filed directly in a docket one-by-one and downloading individual election letters, which are unlikely to be uniform in how they make their elections. We seek comments on our views. What alternative steps could we take to make WEA election information more accessible to relevant stakeholders?

69. *Public Access.* We propose that the contents of the WEA Database be available to the general public. We believe the general public has an interest in knowing whether and to what extent the WEA system is available in their local area, as well as whether the WEA system performs reliably in their local area. We also believe the public should have an informed expectation about the likelihood that they will receive alert messages that do not apply to them. We seek comment on these views. Will making WEA availability and performance information more readily available in the WEA database influence consumer purchasing decisions related to CMS service and mobile devices? Will this foster increased market competition around WEA performance? We seek comment on the extent to which emergency management agencies accessing the publicly available WEA Database that are not currently authorized by FEMA to issue alerts through IPAWS, might be encouraged to become authorized and, as a result, increase the availability of alert messages to unserved areas.

70. We observe that the WEA availability information that Participating CMS Providers would submit to the WEA Database is already publicly available, although not aggregated with other WEA information. The information that Participating CMS Providers would supply to the WEA Database about their WEA coverage area is already publicly available through the National Broadband Map, which makes available for download the mobile voice coverage areas collected through the Broadband Data Collection. Similarly, many Participating CMS Providers already make publicly available information about the WEA-capable mobile devices that they offer at the point of sale. If we were to require Participating CMS Providers to disclose whether they make WEA available using currently deployed public cellular network technologies, that would likely require them to disclose information that is not currently public, but we do not believe that this disclosure would warrant confidential treatment either. The Commission grants the presumption of confidentiality to outage information submitted in NORS for reasons related to national security and competitive sensitivity, but we do not believe those same concerns exist here. We seek comment on our views.

71. We also do not believe that WEA performance information submitted in the WEA Database would warrant confidential treatment. We do not believe that the public availability of this information raises any concerns about national security or competitive sensitivity, and it would not include any PII or CPNI. Data submitted to the WEA Database under this proposal would already be aggregated and anonymized with other mobile device data by CMS Providers and could not be deanonymized to obtain any information about an individual mobile device's receipt of an alert message. Because of this aggregated, anonymized approach to data collection, the Commission does not anticipate that it will receive any CPNI or PII. Accordingly, we seek comment on whether WEA performance information requires confidential treatment or other data privacy protection and, if so, why. We note that since FEMA and the Commission began testing WEA on nationwide and regional bases in 2018, the Commission has regularly made publicly available after-action reports that describe WEA's performance during the exercise. Similarly, the WEA Database would make after-action performance analysis available to alerting authorities. We seek comment on why information about Participating CMS

Providers' performance in the WEA Database should be treated confidentially when information about WEA's performance is already publicly available.

72. *Emergency management agency access.* Section 10.450(b) of the Commission's rules provides that "[u]pon request from an emergency management agency, a Participating CMS Provider will disclose information regarding their capabilities for geo-targeting alert messages. A Participating CMS Provider is only required to disclose this information to an emergency management agency insofar as it would pertain to alert messages initiated by that emergency management agency, and only so long as the emergency management agency offers confidentiality protection at least equal to that provided by the federal FOIA." Notwithstanding the fact that nationwide Participating CMS Providers have established contact information purposefully identified for WEA geo-targeting inquiries, alerting authorities have had difficulty obtaining this information. Accordingly, if the WEA performance reporting proposal we offer today is adopted, we propose to have it replace the existing requirement that Participating CMS Providers share information about WEA's reliability and accuracy upon request from emergency management agencies. We seek comment on this approach. What, if any, harms could arise from granting alerting authorities access to WEA data outside of their local area, alert and warning jurisdictions, or territory? Would public safety be better served if alerting authorities had visibility into the WEA system's availability and performance beyond their jurisdictional boundaries? For example, would it be beneficial for a state agency to have access to data showing the alert messages that its neighboring state transmits would likely overshoot into their state? Would access to additional WEA data beyond an alerting authority's jurisdiction provide a more complete picture of WEA system availability and performance, particularly for alerting authorities that have not yet used the WEA system, or have used it infrequently?

73. If any information in the WEA Database is determined to require confidential treatment, we seek comment on how to protect it. Should we adopt procedures for alerting authority eligibility, user account access, certification requirements, data security, and information sharing similar to those that we adopted for providing federal, state, Tribal, and territorial agencies with direct access to NORS and DIRS? Should any aspects of those procedures differ for the WEA database?

74. If we require credentialed access to the WEA Database, we propose that the WEA Database also include a public-facing portal that would allow the public to query if WEA is available on the mobile wireless network to which they may subscribe, at a specified address where they may live or work, and on specific mobile devices that they may have. If the query indicates WEA is not available, we propose that the WEA Database present the consumer with a description of Participating CMS Providers that offer WEA at their specified location and mobile device. We seek comment on this proposal.

#### **D. Promoting Digital Equity**

75. The Commission, as part of its continuing effort to advance digital equity for all,<sup>152</sup> including people of color, persons with disabilities, persons who live in rural or Tribal areas, and others who are or have been historically underserved, marginalized, or adversely affected by persistent poverty or inequality, invites comment on any equity-related considerations<sup>153</sup> and benefits (if any) that may be

---

<sup>152</sup> Section 1 of the Communications Act of 1934 as amended provides that the FCC "regulat[es] interstate and foreign commerce in communication by wire and radio so as to make [such service] available, so far as possible, to all the people of the United States, without discrimination on the basis of race, color, religion, national origin, or sex." 47 U.S.C. § 151.

<sup>153</sup> The term "equity" is used here consistent with Executive Order 13985 as the consistent and systematic fair, just, and impartial treatment of all individuals, including individuals who belong to underserved communities that have been denied such treatment, such as Black, Latino, and Indigenous and Native American persons, Asian Americans and Pacific Islanders and other persons of color; members of religious minorities; lesbian, gay, bisexual, transgender, and queer (LGBTQ+) persons; persons with disabilities; persons who live in rural areas; and persons otherwise adversely affected by persistent poverty or inequality. See Exec. Order No. 13985, 86 Fed. Reg. 7009, Executive Order on Advancing Racial Equity and Support for Underserved Communities Through the Federal Government (Jan. 20, 2021).

associated with the proposals and issues discussed herein. Specifically, we seek comment on how our proposals may promote or inhibit advances in diversity, equity, inclusion, and accessibility, as well the scope of the Commission's relevant legal authority.<sup>154</sup>

#### **E. Compliance Timeframes**

76. In this Section, we propose compliance timeframes for the proposals in this *Further Notice* that aim to strike an appropriate balance between the urgent public safety need for the contemplated improvements to WEA and wireless industry's need to develop standards, software, practices, and procedures to effectively comply. We note that, similar to the geotargeting rule, because the new capabilities would be dependent on device-level software, firmware, or hardware changes, they necessarily would not be available to alerting authorities and consumers on a 'flash cut' basis. For each of these proposals, we seek comment on whether it would be appropriate to allow CMS Providers that are small- or medium-sized businesses additional time to comply. We seek comment on how we should define small- and medium-sized businesses in this context and whether we should make a distinction between nationwide and non-nationwide CMS Providers in this regard. We also seek comment on how much additional time, if any, small- or medium-sized businesses would reasonably need for compliance with the proposals in this *Further Notice*.

77. *Enhancing WEA's Language Support.* For the rules we propose today requiring Participating CMS Providers' WEA-capable mobile devices to translate English-language alert messages that they receive into the subscriber's default language preference, we propose to set a compliance date of 30 months after the publication of final rules in the *Federal Register*. Depending on the approach used by Participating CMS Providers to satisfy this requirement, compliance with this proposal would necessitate updates to standards and firmware. We also note that CSRIC VIII directed ATIS to conduct a study to determine a feasible, accurate, and effective method for enhancing language support.<sup>155</sup> The Commission has previously reasoned that it takes industry 30 months to comply with rules that implicate the need for updates to WEA standards and firmware— i.e., 12 months to work through appropriate industry bodies to publish relevant standards; another 12 months for Participating CMS Providers and mobile device manufacturers to develop, test, and integrate firmware upgrades consistent with those standards; and 6 more months to deploy the new technology to the field during normal technology refresh cycles.<sup>156</sup> We seek comment on the applicability of this approach and timeframe to these proposals. We believe that a machine-based translation approach to increasing WEA's language support, as contemplated by this *Further Notice*, is likely to only require updates to mobile devices, not to the CMS network, which potentially means less standards and firmware development would be needed. If the record supports the feasibility of that approach to compliance, should we require a shorter compliance deadline, and if so, what should that deadline be?

78. *Improving WEA's Effectiveness with Multimedia Content.* Our proposals to make WEA more accessible by requiring Participating CMS Providers to support sending thumbnail-sized images in

---

<sup>154</sup> See *Wireless Emergency Alerts; Amendments to Part 11 of the Commission's Rules Regarding the Emergency Alert System*, Report and Order and Further Notice of Proposed Rulemaking, FCC 16-127, PS Docket Nos. 15-191 and 15-94, Para. 176 at 11217 (Sept. 29, 2016) (*2016 EAS Amendments to Part 11*).

<sup>155</sup> See Communications Security, Reliability, and Interoperability Council VIII, Report on WEA Application Programming Interface at 27 (Mar. 2023), <https://www.fcc.gov/file/25058/download>; see also Letter from Thomas Goode, General Counsel, ATIS, to James Wiley, Deputy Chief, Cybersecurity and Communications Reliability Division, FCC, PS Docket Nos. 15-91 and 15-94, at 1-2 (Apr. 7, 2023) (stating that ATIS has already begun this examination and indicating that the approach that this *Further Notice* takes to improving WEA's language support is aligned with the direction of ATIS' work on this issue).

<sup>156</sup> See *Wireless Emergency Alerts Amendments to Part 11 of the Commission's Rules Regarding the Emergency Alert System*, PS Docket Nos. 15-91, 15-94, Report and Order and Further Notice of Proposed Rulemaking, 31 FCC Rcd 11112, 11161-62, para. 79 (2016).

WEA alerts and the integration of location-aware maps would implicate updates to standards and firmware in both the CMS network and at mobile devices. To give Participating CMS Providers sufficient time to complete the updates to standard and software necessary, we propose to set a compliance date for these requirements of 36 months from the publication of the rules in the *Federal Register*. We seek comment on this proposal. Would 36 months be sufficient time for all mobile devices that are still technically incompatible with the receipt of 360-character-maximum alerts to churn out of use by subscribers?<sup>157</sup>

79. *Integrate WEA More Seamlessly into People's Lives.* For the rules we propose today that require Participating CMS Providers to be able to send WEA messages without triggering the audio attention signal and the vibration cadence and provide their subscribers with the option to turn off attention signal and vibration cadence, we propose to require Participating CMS Providers and mobile device manufacturers to comply within 30 months of the rules' publication in the *Federal Register*. We believe this compliance deadline is consistent with deadlines for past requirements that have necessitated updates to standards and firmware, as discussed above. We seek comment on this proposal. Can compliance with our proposal to allow subscribers to turn off the attention signal and vibration cadence be achievable only with updates to WEA standards and software at the mobile device? If so, can compliance be achieved in less time than 30 months?

80. *Facilitate More Effective WEA Public Awareness Exercises.* We propose that Participating CMS Providers would be authorized to support up to two annual end-to-end WEA tests per alerting authority 30 days after the Public Safety and Homeland Security Bureau issues a Public Notice announcing OMB approval of any new information collection requirements associated with this rule change. We do not believe that Participating CMS Providers would need to make any changes to support such public awareness testing because such tests would present to a Participating CMS Provider in a manner indistinguishable from any other WEA message. We seek comment on this proposals and our views.

81. *Establishing a WEA Database to Promote Transparency about WEA Availability and Benchmark WEA Performance.* We propose to set a compliance date of 30 months after the publication of final rules in the *Federal Register* or within 30 days of the Public Safety and Homeland Security Bureau's publication of a public notice announcing that the WEA Database is ready to accept filings, whichever is later, for the proposed rules requiring Participating CMS Providers to satisfy WEA performance minimums and submit reports measuring WEA's performance. We believe 30 months is appropriate because Participating CMS Providers will have to update standards and firmware to comply with the performance reporting requirements, and we believe that it is sensible for the performance minimums to go into effect at the same time that the Commission receives the performance measurement data that can assist with enforcing them. We seek comment on this approach. We also seek specific comment on whether to offer an extended compliance timeframe for Participating CMS Providers that are small- and medium-sized businesses, which may have different network resource constraints than the nationwide CMS Providers.

82. We propose to require CMS Providers to refresh their elections to participate in WEA using the WEA Database within 30 days of the Public Safety and Homeland Security Bureau's publication of a public notice announcing (1) OMB approval of any new information collection requirements and (2) that the WEA Database is ready to accept filings. We seek comment on this proposal. We note that the Commission gave wireless industry 30 days within to comply with the Commission's initial requirement to elect whether to participate in WEA.<sup>158</sup> We anticipate that CMS

---

<sup>157</sup> Letter from Amy E. Bender, Vice President, Regulatory Affairs, CTIA, to Marlene H. Dortch, Secretary, FCC, PS Docket Nos. 15-91 and 15-94, at 13 (Apr. 13, 2023) (requesting more time for compliance with this proposal).

<sup>158</sup> *The Commercial Mobile Alert System*, PS Docket 07-287, Third Report and Order, 23 FCC Rcd 12561, 15 para. 32 (2008) revised by Erratum (Sep. 5, 2008).

providers would need to undertake the same measures as they did in their first WEA election to refresh their WEA election in compliance with this proposal, if adopted: assessing the extent to which they can agree to offer WEA in the entirety of their geographic service area, assessing the extent to which all mobile devices that they offer at the point of sale are WEA capable, and assessing their ability to comply with the Commission's technical and procedural WEA rules. To the extent that the requirements we propose to adopt would require additional data entry than was required in CMS Providers' first WEA elections, we believe that using the WEA Database's electronic interface would make the entry of that data achievable within 30 days. We seek comment on these views. We also seek comment on the extent to which pre-populating relevant information that the Commission already has available to it in the WEA Database can further ease the burden of compliance and make it easier for CMS Providers to comply with this requirement within 30 days. We seek comment on any other measures that we can take to facilitate timely compliance with this proposal by all CMS Providers. We do not believe that compliance with this proposal would present unique or heightened burdens to CMS Providers that are small- or medium-sized businesses. We seek comment on this view.

## **F. Benefit-Cost Analysis**

83. In this section, we seek comment on whether we can reasonably expect the minimum benefit resulting from the improvements to WEA we propose today to exceed their maximum cost. We estimate that the proposed rules, both separately and jointly, would improve the effectiveness of WEA and bring benefits through improved public safety outcomes. We estimate the maximum, aggregated cost of compliance with the proposals in this *Further Notice* would be \$39.9 million as a one-time cost and \$422,500 as an annually recurring cost. Although most of the benefits are difficult to quantify, we believe they outweigh the overall costs of the proposed rules.

### **1. Benefits**

84. We seek comment on the benefits of the proposals in this *Further Notice* taken together. We are cognizant of the fact that, as a general matter, it is impossible to assign precise dollar values to changes to WEA that improve the public's safety, life, and health.<sup>159</sup> We also believe that these proposals will result in benefits measurable in terms of lives saved and injuries and property damage prevented. We seek comment on developments in social science that add support to or refute the premise that effective alerts and warnings help to move people more effectively to take protective actions during emergencies.<sup>160</sup> We seek comment on how to quantify the value of the improvements to public safety outcomes that result from faster and more effective protective actions during disasters. Are there situations where, had the Commission implemented the improvements to WEA on which we seek comment today, deaths and injuries could have been prevented or mitigated? We seek comment on the extent to which the improved alert message accessibility and personalization features that we propose in this *Further Notice* would improve the effectiveness of WEA alert messages and reduce "milling" behavior.<sup>161</sup> We seek comment on whether our proposals to integrate WEA more seamlessly into people's lives will increase the rate of consumer opt-in to WEA or otherwise result in more people receiving and effectively responding to potentially life-saving instructions from alerting authorities during emergencies. We also seek comment on any enhancements to our proposals that would make WEA more likely to save lives, prevent injuries, and protect properties. Would the adoption of our proposed rules, such as WEA alert tests and accessible WEA Database, also provide additional benefits to alerting authorities, for instance, reducing costs of

---

<sup>159</sup> *Resilient Networks*, Report and Order, PS Docket 21-346, FCC 22-50, para. 46 (2022) (*Resilient Networks Order*) ("it would be impossible to quantify the precise financial value of these health and safety benefits").

<sup>160</sup> See Michele M. Wood, Dennis Mileti, Hamilton Bean, Brooke Liu, Jeannette Sutton, and Stephanie Madden, *Milling and Public Warnings*, 50 *Environment and Behavior* (2017), [https://www.researchgate.net/publication/317242672\\_Milling\\_and\\_Public\\_Warnings](https://www.researchgate.net/publication/317242672_Milling_and_Public_Warnings).

<sup>161</sup> *Id.*

analyzing alerts' performance? We seek further comment on the benefits of our proposals taken individually and jointly.

85. *Enhancing WEA's Language Support.* We tentatively conclude that the benefit of the proposed WEA language support is likely to be significant. Currently, the 76 CMS Providers participating in WEA send alerts to 75% of mobile phones in the country.<sup>162</sup> Among the 26 million people who do not primarily speak English or Spanish, nearly 15.4 million speak primarily one of the 12 languages that we propose to integrate into the WEA system in addition to English and Spanish.<sup>163</sup> Assuming 75% of these individuals are covered by the WEA system, approximately 10 million people who have been receiving WEA alerts in languages they cannot comprehend would understand the content of WEA alerts under the proposed WEA language support.<sup>164</sup> Even if alerts reach just 1% of this population per year (i.e., nearly 100,000 people) the potential of WEA to prevent property damage, injuries, and deaths could be enormous.

86. *Improving WEA's Effectiveness with Multimedia Content.* We tentatively conclude that the proposed requirement of support for multimedia content in WEA messages, including "location-aware maps" and thumbnail-sized images, will result in enhanced effectiveness of the messages. Images can strengthen communications by stimulating attention, conveying large amount of information in a short amount of time, and promoting information retention.<sup>165</sup> Therefore, requiring support for multimedia content is likely to raise receivers' attention and situational awareness and lead to improved public safety. Although the benefit is difficult to quantify, it is likely to dwarf the small costs associated with the inclusion of multimedia content in WEA messages. Given the small size of such content (e.g., thumbnail-sized image using 0.013 megabytes of data),<sup>166</sup> we anticipate the additional cost to transmit it to be negligible. We seek comment and data on this assessment. We also anticipate that transmitting location-aware maps and thumbnail-sized images in WEA alert messages would not cause significant delays in alert transmission. We seek comment on this assessment.

---

<sup>162</sup> Fox News, *FEMA tests 'presidential alert' to 225 million electronic devices*, <https://www.foxnews.com/us/fema-tests-presidential-alert-to-225-million-electronic-devices> (last visited Mar. 7, 2023) ("FEMA officials estimate nearly 75 percent of all mobile phones in the country, including major carriers, will receive the (presidential) alert").

<sup>163</sup> Among the 26 million people who do not primarily speak English or Spanish, 15,375,637 individuals speak one of the additional 12 languages that we propose to add to the WEA system. Staff calculation based on Sandy Dietrich and Erik Hernandez, *Language Use in the United States: 2019*, page 8 (2022), <https://www.census.gov/content/dam/Census/library/publications/2022/acs/acs-50.pdf>. Assuming 75% of these individuals are able to receive WEA messages, approximately 10 million [ $15,375,637 * 75\% = 9,994,164$ ] additional people would receive these messages in the primary language they speak.

<sup>164</sup> According to the *2022 Communications Marketplace Report*, Numbering Resource Utilization/Forecast (NRUF) data show that, at year end-2021 in the United States, there were 439 million wireless connections, which are measured as phone numbers being assigned to mobile wireless devices. See *2022 Communications Marketplace Report* at 56, para. 73. The number of wireless connections greatly exceeds the U.S. population which was under 332 million based on 2020 U.S. Census data. U.S. Census Bureau, *U.S. Census Bureau Today Delivers State Population Totals for Congressional Apportionment* (Apr. 26, 2021), <https://www.census.gov/library/stories/2021/04/2020-census-data-release.html>. Although the connection count includes both traditional handsets and other connected devices, e.g., wearables, for simplicity, we assume that the entire U.S. population can be reach via mobile connections.

<sup>165</sup> Jerry Weissman, Forbes, *The power of pictures in presentation design* (Feb. 25, 2022), <https://www.forbes.com/sites/jerryweissman/2022/02/25/the-power-of-pictures-in-presentation-design/?sh=1d2760db20a7> (as oppose to text, visuals are processed 60,000 times faster).

<sup>166</sup> ATIS, ATIS Feasibility Study for WEA Supplemental Text, ATIS 0700026 (2015) (contemplating that a thumbnail-sized photo of about 1.5"x1.5" with a resolution of 72 dots per inch (DPI) will produce an image of 120x120 pixels and that if 8 bit color scale is used, then a digital image file will be about 14,400 bytes (0.013 megabytes) in size).

87. *Allow Alerting Authorities More Flexibility in how WEA Messages are Presented.* We believe that allowing alerting authorities more flexibility in deciding how WEA messages are presented, such as suppressing the audio attention signal and vibration cadence in an active shooter scenario, could help reduce casualties. According to the FBI, there were 61 active shooter incidents in 2021, resulting in 243 casualties—including 103 deaths and 140 injuries, excluding to the shooters.<sup>167</sup> It is reasonable to assume that suppressing the audio attention signal and vibration cadence during an active-shooting scenario could reduce casualties by discretely warning the public, yielding substantial benefits to public safety. We seek comment on statistics and data related to the benefits through the reduction of casualties resulting from the messaging flexibility. Although suppressing the audio attention signal and vibration cadence may not be warranted in all situations, we believe that alerting authorities would be in the best position in determining whether a specific situation warrants the adjustment in how messages are presented so the adverse impact of inattention would be minimized. We also believe allowing alerting authorities this flexibility would be technically feasible at a minimal expense, and hence the proposed rule would likely result in net benefits. We seek comment on our assessment.

88. *Prevent Unnecessary Consumer Opt-out.* We believe that offering an alternative in addition to the binary choices between opt-out and opt-in may help retain consumers on the WEA system. The Commission’s rules already allow for consumers to mute the audio attention signal and vibration cadence when users set their devices to “do not disturb” mode. Outside of these “do not disturb” windows, consumers would find “opt-out” to be the only option to avoid the distraction of WEA alerts. Without the third option that allows consumers to silently receive all WEA alerts, consumers are likely to opt out from WEA if they still find the audio attention signal and vibration cadence interrupting. For those who already opted out from WEA, adding this muting option does not make them any worse off and may even cause some of them to opt in again. Therefore, we believe this proposed rule can prevent unnecessary consumer opt-out and result in improvement in public safety outcomes. Although this proposal would require collaboration between wireless providers and device manufacturers, we believe the technical difficulties and costs should be small. As a result, we tentatively conclude that the proposed rule would enhance public safety at a minimal cost. We seek comment on this assessment and any evidence and data to support or correct our assessment.

89. *Facilitate More Effective WEA Public Awareness Exercises.* We propose to authorize Participating CMS Providers to support up to two annual end-to-end WEA tests per alerting authority, consistent with EAS test rules. We believe harmonizing WEA and EAS test rules would improve the effectiveness of public awareness exercises and reduce consumer alert fatigue when such tests are better coordinated than tested separately. We do not believe that CMS Providers would incur any cost to comply with our proposal to allow alerting authorities to conduct two public awareness tests per year. Therefore, we believe this proposal will bring net benefits to the public. We seek comment on these assessments.

90. *Establishing a WEA Database to Promote Transparency about WEA Availability and Benchmark WEA Performance.* We believe that establishing measurable goals and performance measures for WEA will improve the speed, accuracy and reliability of WEA messages. The public will benefit from improved and targeted usage of WEA alert messages. Greater accuracy in sending alert messages will result in less overshoot, which in turn will mean that fewer people will receive alert messages not intended for them and will be less likely to take unnecessary action or opt out of receiving alert messages. We seek comment on the benefits of establishing benchmarks that will make WEA faster, more accurate, and more reliable. We seek comment on whether improving WEA performance would encourage greater and more effective usage of WEA. Would alerting authorities be more likely to issue an alert message if they knew it would be received by the people for whom it was intended while not being received by people for whom it was not intended? Will improving WEA also result in more emergency management

---

<sup>167</sup> Federal Bureau of Investigation (FBI), Active shooter incidents in the United States in 2021 at 8 (2022), <https://www.fbi.gov/file-repository/active-shooter-incidents-in-the-us-2021-052422.pdf/view>.

agencies investing the time, effort, and resources necessary to become authorized as alerting authorities? We seek comment on the benefit of emergency management agencies using alert messages both more often and more effectively. Will improved performance cause current alerting authorities to use WEA in circumstances they might have hesitated to use them previously? We seek comment on these benefits.

91. The proposed WEA Database would provide a nationwide WEA availability and performance dataset. We believe that giving the Commission, FEMA, alerting authorities, and consumers access to this dataset through a graphical user interface and data visualization tool will significantly improve their understanding of how WEA works in practice. We believe that understanding how WEA works in practice will help alerting authorities to use WEA more effectively, enable consumers to use their mobile devices as preparedness tools, and enable the Commission and FEMA to more effectively discharge their responsibilities as stewards of the nation's alert and warning capability. We seek comment on this view. As discussed above, emergency management agencies may be declining to use the WEA system in situations where it could save lives because they lack information about, and confidence in, how WEA works in practice.<sup>168</sup> We seek comment on our tentative conclusion that implementing a WEA Database will increase alerting authorities' confidence in and use of the WEA system by providing visibility and assurances. We seek comment on whether the WEA Database would also promote the public interest by providing alerting authorities with information as to where their alerts will not reach intended recipients and their need to employ alternate methods of notifying the public of emergency situations. We also seek comment on whether WEA availability and performance information would promote public confidence in WEA and influence consumer choice when deciding from which CMS provider to purchase service. As a result, would market forces be more likely to incentivize additional CMS Providers to elect to transmit emergency alerts or to improve the availability of the WEA service that they offer? How would Participating CMS Providers, emergency managers, and the public benefit if some among the over 450 CMS Providers that have elected not to participate in WEA started transmitting WEA alert messages? We seek comment on whether greater knowledge of WEA's coverage, in terms of geographic areas and network technologies, would encourage providers to increase their support for WEA. We seek additional comment on other benefits that can be gleaned from WEA availability and performance reporting.

## 2. Costs

92. We seek comment on the costs that Participating CMS Providers would expect to incur as a result of their compliance with the rule changes we propose in this *Further Notice*. We anticipate that these rules will lead Participating CMS Providers to incur costs associated with modifying standards and software, and recordkeeping and reporting costs. We seek comment on whether adopting all these proposals as a package may result in a cost savings as opposed to having to modify standards and software in response to several, incremental policy changes.

93. We estimate that Participating CMS Providers would incur a \$39.9 million one-time cost to update the WEA standards and software necessary to comply the proposals in this *Further Notice*. This figure consists of approximately a \$814,000 cost to update applicable WEA standards and approximately a \$39.1 million cost to update applicable software. We quantify the cost of modifying standards as the annual compensation for 30 network engineers compensated at the national average for

---

<sup>168</sup> *CSRIC VIII Report on WEA Performance Reporting* at 4. Over 1,600 emergency management agencies are authorized to use WEA but only 619 have ever done so. Consumer groups, the National Center for Missing and Exploited Children, and emergency management agencies state that performance requirements and reporting are necessary to give them enough confidence to use WEA and to enable them to use WEA more adeptly. See APCO International, Comments, PS Docket No. 15-91, at 5 (Dec. 8, 2016); Nassau County Office of Emergency Management, Comments, PS Docket No. 15-91, at 2 (Dec. 8, 2016); Harris County, Texas Homeland Security and Emergency Management, Comment, PS Docket No. 15-91, at 1 (Sept. 7, 2018); New York City Emergency Management Department, Comments, PS Docket No. 15-91, at 15 (Dec. 8, 2016); Wireless RERC & CACP, Comments, PS Docket No. 15-91, at 14 (Dec. 8, 2016).

their field (\$120,650/year; \$58/hour), plus annual benefits (\$60,325/year; 29/hour) working for the amount of time that it takes to develop a standard (one hour every other week for one year, 26 hours) for 12 distinct standards.<sup>169</sup> We quantify the cost of modifying software as the annual compensation for a software developer compensated at the national average for their field (\$120,990/year), plus annual benefits (\$60,495/year) working for the amount of time that it takes to develop software (ten months) at each of the 76 CMS Providers that participate in WEA.<sup>170</sup> We quantify the cost of testing these modifications (including integration testing, unit testing and failure testing) to require 12 software developer compensated at the national average for their field working for two months at each of the 76 CMS Providers that participate in WEA.<sup>171</sup> In quantifying costs for software development, we have used the same framework since 2016 for changes to software ranging from developing new standards to enhanced geo-targeting.<sup>172</sup> Does this remain an appropriate framework to describe the costs of software or firmware updates needed to comply with the proposals in this *Further Notice*? We seek comment on these cost estimates and the underlying cost methodology we are using.

94. We also seek comment on specific costs of reporting and recordkeeping related to reporting information about WEA's availability and performance in the WEA Database. We expect costs associated with our proposals related to WEA availability reporting to be negligible for Participating CMS Providers that participate in WEA in whole or that otherwise offer WEA in the entirety of their geographic service area because such Participating CMS Providers have already provided the Commission with the shapefile data needed to fulfill a significant aspect of their reporting obligation in

---

<sup>169</sup> This is calculated as follows: 30 network engineers x (\$58 + \$29) per hour per network engineer x 26 hours per standard x 12 standards = \$814,320. We round this figure to \$814,000 to avoid the false appearance of precision in our estimate. See Bureau of Labor Statistics Employer Costs for Employee Compensation Summary, Computer Network Architect (May 2021), <https://www.bls.gov/oes/current/oes151241.htm> (last visited Aug. 25, 2022) (stating that the average base salary for a computer network architect is \$120,730/yr); Letter from Tom Goode, General Counsel, ATIS, to Marlene Dortch, Secretary, FCC, PS Docket No. 15-91, at 1 (filed Sep. 6, 2016) (stating that, when standards need to be modified for WEA, it would be common practice for groups of approximately 30 individuals with relevant technical expertise meet approximately bi-weekly for an hour to discuss the modifications); *Wireless Emergency Alerts; Amendments to Part 11 of the Commission's Rules Regarding the Emergency Alert System*, PS Docket Nos. 15-91, 15-94, Second Report and Order and Second Order on Reconsideration, 33 FCC Rcd 1320, 1344-45, para. 33, n.154 (2018) (listing the 12 WEA standards).

<sup>170</sup> This is calculated as follows: (\$120,650 + \$60,325) annually per Participating CMS Provider x 10 months / 12 months per year x 76 Participating CMS Providers = \$11,461,750. See Bureau of Labor Statistics Employer Costs for Employee Compensation Summary, Software Developers, (May 2021) <https://www.bls.gov/oes/current/oes151252.htm>, (last visited Aug. 25, 2022) (stating that the average base salary for a software developer is \$120,730/year, which results in total compensation of \$180,960 when benefits are included); Verizon, PS Docket No. 15-91, Comments, PS Docket No. 15-91, at 5 (Jan. 13, 2016) (stating that it takes manufacturers and vendors 12 months to incorporate WEA standards into their products and test them); FCC, Master WEA Registry, <https://www.fcc.gov/files/weamasterregistry112019.xls> (last visited Aug. 19, 2022) (reflecting that 76 CMS Providers participate in WEA either in whole or in part).

<sup>171</sup> This is calculated as follows: 12 software developers x (\$120,650 + \$60,325) annually per Participating CMS Provider x 2 months / 12 months per year x 76 Participating CMS Providers = \$ 27,508,200. *Id.*

<sup>172</sup> See *Wireless Emergency Alerts; Amendments to Part 11 of the Commission's Rules Regarding the Emergency Alert System*, PS Docket Nos. 15-91, 15-94, Report and Order and Further Notice or Proposed Rulemaking, 31 FCC 11112, 11168-81 paras. 96-103 (2016) ("According to ATIS, when standards need to be modified for WEA, it would be common practice for groups of approximately 30 individuals with relevant technical expertise meet approximately bi-weekly for an hour to discuss the modifications. Commenters assert that these standards-setting processes can be completed within 12 months, or 26 bi-weekly, one-hour meetings."); see also *Amendments to Part 11 of the Commission's Rules Regarding the Emergency Alert System*, PS Docket Nos. 15-91, 15-94, Second Report and Order and Second Order on Reconsideration, 33 FCC Rcd 1320, 1344-45, para. 33 (2018) ("We received no objections to this approach in the record.").

furtherance of their obligations to support the Commission's Broadband Data Collection.<sup>173</sup> We seek comment on this view. For CMS Providers participating in WEA in part that may need to tailor shapefiles to reflect the extent of its WEA coverage, what, if any, costs would they incur to recreate or reformat shapefiles to depict the extent of its WEA coverage? In the Supporting Document of Study Area Boundary Data Reporting in Esri Shapefile Format, the Office of Information and Regulatory Affairs estimates that it takes an average of 26 hours for a data scientist to modify a shapefile.<sup>174</sup> We believe submitting WEA availability information in shapefile format should require less time than modifying a shapefile. Therefore, we believe 26 hours would be an upper bound of the time required for a Participating CMS Provider to report its WEA availability in shapefile format. Given that the median wage rate is \$48.52/hour for data scientists,<sup>175</sup> with a 45% markup for benefits,<sup>176</sup> we arrive at \$70.40 as the hourly compensation rate for a data scientist. We estimate an aggregate cost of WEA availability reporting to be approximately \$139,000 ( $\approx$  \$70.40 per hour x 26 hours x 76 providers), which may be recurring on an annual basis since availability may change and need to be updated over time. We seek comment on our estimates of the time and costs Participating CMS Providers have to spend on gathering and submitting WEA's availability information in GIS shapefile format in the WEA Database?

95. We acknowledge that our proposed rules on collecting the data necessary to measure WEA's reliability, accuracy, and speed for each alert in a WEA Database would incur some operating costs for Participating CMS Providers. However, we believe that once Participating CMS Providers upgrade the standards and software necessary to automate WEA performance reporting, we expect that the process of data collection and data submission would require minimal human intervention. Although we anticipate such performance reporting would be largely automated once it is set up, we estimate a routine administrative monitoring cost that Participating CMS Providers may still incur when they file the performance report for each alert incident. We estimate that, for each alert, a provider will need an office administrator, who is compensated at \$27 hour, to spend 0.5 hours in monitoring each data transmission. At the aggregate level, we believe there will be 21,000 performance reports transmitted to the WEA database, resulting in a \$283,500 annual recurring cost at the aggregate level.<sup>177</sup> We seek comment on our estimates and alternative approaches to assess recordkeeping and reporting costs for WEA performance reporting.

---

<sup>173</sup> See generally, *Establishing the Digital Opportunity Data Collection; Modernizing the FCC Form 477 Data Program*, WC Docket Nos. 19-195 and 11-10, Report and Order and Second Further Notice of Proposed Rulemaking (2019) (discussing costs of requiring submission of broadband coverage maps (polygons) from fixed providers).

<sup>174</sup> See Office of Information and Regulatory Affairs, Office of Management and Budget Executive Office of the President, 2022 Study Area Boundary Data Reporting in Esri Shapefile Format DA 12-1777 and DA 13-282, Supporting Statement - OMB Control No. 3060-1181, at 5- paras. 12 (Feb. 15, 2022), [https://www.reginfo.gov/public/do/PRAViewDocument?ref\\_nbr=202202-3060-009](https://www.reginfo.gov/public/do/PRAViewDocument?ref_nbr=202202-3060-009).

<sup>175</sup> We use the Bureau of Labor Statistics median wage for data scientists, which they estimate at \$48.52. See Bureau of Labor Statistics, *Occupational Employment Statistics*, <https://www.bls.gov/oes/current/oes152051.htm> (last visited Mar. 9, 2023).

<sup>176</sup> See *Compensation Benefit Mark-up*.

<sup>177</sup> Given that WEA was used 70,000 times over the last decade, we estimate that 7,000 alerts ( $= 70,000 / 10$  years) were issued per year. According to 2022 Communications Marketplace Report, nearly 95% of consumers have at least three wireless provider options in their areas. See *Communications Marketplace Report* et al., GN Docket No. 22-203, Report, FCC 22-103, at 110, Fig. II.B.37 (Dec. 30, 2022), <https://www.fcc.gov/document/2022-communications-marketplace-report>. Therefore, we estimate that the total number of performance reports that need to be filed would be 21,000 ( $= 7,000$  alerts x 3 providers per alert). Assuming each alert take an additional 0.5 hours for an office administrator to process for Participating CMS Provider at a compensation rate of \$27 per hour, the total additional recurring cost is \$283,500 ( $= \$27/\text{hour} \times 0.5 \text{ hours} \times 21,000$  reports) per year. See *Office Administrator Compensation*.

96. Because CMS Providers' participation in WEA is voluntary,<sup>178</sup> Participating CMS Providers may opt out of participating in WEA if they decide the costs of the proposed rules are too burdensome. Despite the voluntary nature of the program and potential Participating CMS Providers' opt-out, it is our belief that they have incurred significant good will from their voluntary Participation in WEA over the last decade that justifies their continued participation. Therefore, we anticipate that existing Participating CMS Providers are very unlikely to withdraw their participation in the WEA system if the performance standards and reporting requirements are adopted. We seek comment on this assessment and any forecast and data to support or refute our assessment. We seek comment on whether there are any other types of costs that we should consider as relevant to our analysis. Are there alternative methods of achieving our goals in these areas that would present Participating CMS Providers with lesser burdens? If so, we seek comment on costs associated with these alternative methods. We also seek costs on any modifications that we could implement to our proposed rules to limit the burden of compliance on entities considered to be small- or medium-sized businesses.

#### IV. PROCEDURAL MATTERS

97. *Paperwork Reduction Act.* This document contains proposed new and modified information collection requirements. The Commission, as part of its continuing effort to reduce paperwork burdens, invites the general public and the Office of Management and Budget (OMB) to comment on the information collection requirements contained in this document, as required by the Paperwork Reduction Act of 1995, Public Law 104-13. In addition, pursuant to the Small Business Paperwork Relief Act of 2002, Public Law 107-198, see 44 U.S.C. § 3506(c)(4), we seek specific comment on how we might further reduce the information collection burden for small business concerns with fewer than 25 employees.

98. *Ex Parte Rules - Permit-But-Disclose.* This proceeding this Notice initiates shall be treated as a "permit-but-disclose" proceeding in accordance with the Commission's *ex parte* rules.<sup>179</sup> Persons making *ex parte* presentations must file a copy of any written presentation or a memorandum summarizing any oral presentation within two business days after the presentation (unless a different deadline applicable to the Sunshine period applies). Persons making oral *ex parte* presentations are reminded that memoranda summarizing the presentation must (1) list all persons attending or otherwise participating in the meeting at which the *ex parte* presentation was made, and (2) summarize all data presented and arguments made during the presentation. If the presentation consisted in whole or in part of the presentation of data or arguments already reflected in the presenter's written comments, memoranda or other filings in the proceeding, the presenter may provide citations to such data or arguments in his or her prior comments, memoranda, or other filings (specifying the relevant page and/or paragraph numbers where such data or arguments can be found) in lieu of summarizing them in the memorandum. Documents shown or given to Commission staff during *ex parte* meetings are deemed to be written *ex parte* presentations and must be filed consistent with Rule 1.1206(b). In proceedings governed by Rule 1.49(f) or for which the Commission has made available a method of electronic filing, written *ex parte* presentations and memoranda summarizing oral *ex parte* presentations, and all attachments thereto, must be filed through the electronic comment filing system available for that proceeding, and must be filed in their native format (e.g., .doc, .xml, .ppt, searchable .pdf). Participants in this proceeding should familiarize themselves with the Commission's *ex parte* rules.

99. *Regulatory Flexibility Act.* The Regulatory Flexibility Act of 1980, as amended (RFA),<sup>180</sup> requires that an agency prepare a regulatory flexibility analysis for notice and comment rulemakings, unless the agency certifies that "the rule will not, if promulgated, have a significant

<sup>178</sup> See *WEA NPRM*, 30 FCC Rcd at 13818, para 79.

<sup>179</sup> 47 CFR §§ 1.1200 *et seq.*

<sup>180</sup> See 5 U.S.C. § 603. The RFA, 5 U.S.C. §§ 601–612, was amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996).

economic impact on a substantial number of small entities.”<sup>181</sup> Accordingly, the Commission has prepared an Initial Regulatory Flexibility Analysis (IRFA) concerning the possible impact of the rule and policy changes contained in this *Further Notice of Proposed Rulemaking*. The IRFA is set forth in Appendix B.

100. *Filing Requirements—Comments and Replies*. Pursuant to sections 1.415 and 1.419 of the Commission’s rules, 47 CFR §§ 1.415, 1.419, interested parties may file comments and reply comments on or before the dates indicated on the first page of this document. Comments may be filed using the Commission’s Electronic Comment Filing System (ECFS). See *Electronic Filing of Documents in Rulemaking Proceedings*, 63 FR 24121 (1998).

- Electronic Filers: Comments may be filed electronically using the Internet by accessing the ECFS: <https://www.fcc.gov/ecfs/>.
- Paper Filers: Parties who choose to file by paper must file an original and one copy of each filing.
- Filings can be sent by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail. All filings must be addressed to the Commission’s Secretary, Office of the Secretary, Federal Communications Commission.
  - Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9050 Junction Drive, Annapolis Junction, MD 20701.
  - Postal Service first-class, Express, and Priority mail must be addressed to 45 L Street, NE, Washington, DC 20554.
- Effective March 19, 2020, and until further notice, the Commission no longer accepts any hand or messenger delivered filings. This is a temporary measure taken to help protect the health and safety of individuals, and to mitigate the transmission of COVID-19.<sup>182</sup>
- During the time the Commission’s building is closed to the general public and until further notice, if more than one docket or rulemaking number appears in the caption of a proceeding, paper filers need not submit two additional copies for each additional docket or rulemaking number; an original and one copy are sufficient.

101. *People with Disabilities*. To request materials in accessible formats for people with disabilities (braille, large print, electronic files, audio format), send an e-mail to [fcc504@fcc.gov](mailto:fcc504@fcc.gov) or call the Consumer & Governmental Affairs Bureau at 202-418-0530 (voice).

102. *Additional Information*. For further information regarding Notice, please contact [WEA@fcc.gov](mailto:WEA@fcc.gov), or David Kirschner, Cybersecurity and Communications Reliability Division, Public Safety and Homeland Security Bureau, (202) 418-0695, or by email to [david.kirschner@fcc.gov](mailto:david.kirschner@fcc.gov).

## V. ORDERING CLAUSES

103. Accordingly, IT IS ORDERED that pursuant to Sections 1, 2, 4(i), 4(n), 301, 303(b), 303(e), 303(g), 303(j), 303(r), 307, 309, 316, 403, and 706 of the Communications Act of 1934, as amended, 47 U.S.C §§ 151, 152, 154(i), 154(n), 301, 303(b), 303(e), 303(g), 303(j), 303(r), 307, 309, 316, 403, 606; and sections 602(a), (b), (c), (f), 603, 604, and 606 of the Warning Alert and Response Network (WARN) Act, 47 U.S.C. §§ 1201(a), (b), (c), (f), 1203, 1204, 1206, that this *Further Notice of Proposed Rulemaking* IS hereby ADOPTED.

<sup>181</sup> *Id.*

<sup>182</sup> See *FCC Announces Closure of FCC Headquarters Open Window and Change in Hand-Delivery Policy*, Public Notice, 35 FCC Rcd 2788 (2020).

104. IT IS FURTHER ORDERED that the Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, SHALL SEND a copy of this *Further Notice of Proposed Rulemaking*, including the Initial Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch  
Secretary

## APPENDIX A

## Proposed Rules

For the reasons set forth above, Part 10 of title 47 of the Code of Federal Regulations is amended as follows:

**PART 10 – WIRELESS EMERGENCY ALERTS**

1. The authority citation for part 10 is revised to read as follows:

Authority: 47 U.S.C §§ 151, 152, 154(i), 154(n), 301, 303(b), 303(e), 303(g), 303(j), 303(r), 307, 309, 316, 403, 544(g), 6061201(a), (b), (c), (f), 1203, 1204, 1206

2. Amend § 10.10 by revising paragraph (j), redesignating paragraphs (k) and (l) as paragraphs (l) and (m), and adding new paragraph (k) to read as follows:

**§ 10.10 Definitions.**

\* \* \* \* \*

(j) **Mobile Devices.** Any customer equipment used to receive commercial mobile service.

(k) **WEA-Capable Mobile Devices.** Mobile devices, as defined paragraph (j) of this section, that support the Subpart E Equipment Requirements.

\* \* \* \* \*

3. Amend § 10.210 by revising paragraph (a) introductory text, (b), and (c), redesignating paragraphs (b) and (c) as paragraphs (d) and (e), adding new paragraphs (b) and (c), and revising paragraph (e) to read as follows:

**§ 10.210 WEA participation election procedures.**

(a) A CMS provider that elects to transmit WEA Alert Messages must elect to participate in part or in whole, as defined by § 10.10(l) and (m), and shall electronically file in the Commission’s WEA Database attesting that the Provider:

\* \* \*

(b) A CMS Provider that elects to participate in WEA must disclose the following information in their election filed in the Commission’s WEA Database:

(1) The entities on behalf of which the Participating CMS Provider files its election, including the subsidiary companies on behalf of which their election is filed, the “doing business as” names under which a Participating CMS Provider offers WEA, and the Mobile Virtual Network Operators (MVNOs) and wireless resellers through which the Participating CMS Provider offers WEA;

(2) The extent to which the Participating CMS Provider offers WEA in the entirety of their geographic service area, as demonstrated by the following:

(i) a map of their wireless coverage area in shapefile format;

(ii) to the extent that it differs from their wireless coverage area specified in response to paragraph (b)(2)(i) of this section, a map of the geographic areas to which they elect to transmit WEA alert messages in shapefile format.

(3) The extent to which all WEA-capable mobile devices that the Participating CMS Provider offers at the point of sale are WEA-capable, as demonstrated by the following:

- (i) the mobile devices, as defined in § 10.10(j), that the Participating CMS Provider offers at their point of sale;
- (ii) the WEA-capable mobile devices, as defined in § 10.10(k), that the Participating CMS Provider offers at their point of sale.

(c) If the terms of a CMS Provider's WEA participation change in any manner described by paragraph (b) of this section, it must update the information about its WEA participation disclosed pursuant to that paragraph within 30 days such that the information in the WEA Database accurately reflects the terms of their WEA participation.

(d) A CMS Provider that elects not to transmit WEA Alert Messages shall file electronically in the Commission's WEA Database attesting to that fact, and include the subsidiary companies, the CMS Provider's "doing business as" names, MVNOs, and wireless resellers on behalf of which the election is filed.

(e) CMS Providers shall file their elections electronically into the WEA Database.

\* \* \* \* \*

4. Amend §10.280 by redesignating paragraph (b) as paragraph (d) and adding new paragraphs (b) and (c) to read as follows:

**§ 10.280 Subscribers' right to opt out of WEA notifications.**

- (a) \* \* \*
- (b) CMS providers shall provide their subscribers with a distinct option to durably turn off WEA's audio attention signal and vibration cadence for all alerts received.
- (c) CMS providers shall provide their subscribers with the option to opt out of the collection of WEA performance analytic information described by § 10.500(i).
- (d) \* \* \*

\* \* \* \* \*

5. Amend § 10.330 by adding a new paragraph (d), to read as follows

**§ 10.330 Provider infrastructure requirements.**

\* \* \* \* \*

(d) Collecting the data elements necessary to measure WEA's performance, as defined in Section 10.360.

\* \* \* \* \*

6. Amend § 10.350 by adding a new paragraph (d) to read as follows:

**§ 10.350 WEA testing and proficiency training requirements.**

This section specifies the testing that is required of Participating CMS Providers.

\* \* \*

(d) **Public Awareness Tests.** Participating CMS Providers may participate in no more than two (2) WEA System tests per calendar year that the public receives by default to raise public awareness, provided that the entity conducting the test:

- (i) Conducts outreach and notifies the public before the test that live event codes will be used, but that no emergency is, in fact, occurring;
- (ii) To the extent technically feasible, states in the test message that the event is only a test;
- (iii) Coordinates the test among Participating CMS Providers and with state and local emergency authorities, the relevant SECC (or SECCs, if the test could affect multiple states), and first responder organizations, such as PSAPs, police, and fire agencies); and,
- (iv) Provides in widely accessible formats the notification to the public required by this paragraph that the test is only a test and is not a warning about an actual emergency.

\* \* \* \* \*

7. Add § 10.360 to subpart C to read as follows:

**§ 10.360 Performance Reporting.**

Participating CMS Providers are required to transmit performance data to the Commission's WEA Database regarding WEA's reliability, accuracy and speed.

\* \* \* \* \*

8. Amend § 10.450 by revising the introductory text and paragraphs (a) and (b) and removing paragraph (c), to read as follows:

**§ 10.450 Geographic targeting.**

This section establishes minimum requirements for the geographic targeting of Alert Messages. A Participating CMS Provider will determine which of its network facilities, elements, and locations will be used to geographically target Alert Messages. A Participating CMS Provider must deliver any Alert Message that is specified by a circle or polygon to an area that matches the specified circle or polygon.

- (a) A Participating CMS Provider is considered to have matched the target area they meet both of the following conditions:
  - (1) *Reliability.* Deliver an Alert Message to 100 percent of WEA-capable Mobile Devices that are located within a Participating CMS Provider's WEA coverage area and are located within an Alert Message's geographic target area during an Alert Message's active period.
  - (2) *Accuracy.* Do not present an Alert Message on mobile devices located farther than 0.1 miles outside the Alert Message's target area.

\* \* \* \* \*

9. Revise § 10.460 to read as follows:

**§ 10.460 WEA Transmission Speed.**

No more than 5 minutes shall elapse for 99% of mobile devices from the time that a Participating CMS Provider receives an alert message at the CMS Alert Gateway and the time that mobile devices present the alert message based on aggregated, annualized data submitted to the WEA Database.

\* \* \* \* \*

10. Amend § 10.480 by redesignating the introductory text as paragraph (a) and adding a new paragraph (b) to read as follows:

**§ 10.480 Language support.**

- a) Participating CMS Providers are required to transmit WEA Alert Messages that are issued in the Spanish language or that contain Spanish-language characters.

\* \* \* \* \*

11. Add a new § 10.490 to subpart D to read as follows:

**§ 10.490 Multimedia support**

- a) Participating CMS Providers are required to transmit “thumbnail-sized” images in WEA alert messages. A thumbnail sized image meets or exceeds each of the following parameters: 1.5"x1.5" in size with a resolution of 72 dots per inch consisting of 120x120 pixels in 8 bit color scale.
- b) Participating CMS Providers are required support mobile devices’ presentation of maps that include at least the following elements:
  - 1. Shape of the target area
  - 2. User location relative to the target area
  - 3. A graphical representation of the geographic area in which both the targeted area and user are located.

\* \* \* \* \*

12. Amend § 10.500 by revising paragraph (e) and adding new paragraphs (i) and (j) to read as follows:

**§ 10.500 General requirements.**

\* \* \* \* \*

(e) Extraction of alert content in English or translation of alert content into the subscriber’s preferred language;

\* \* \*

(i) Logging and making available to the CMS network the data elements necessary to measure WEA’s performance, as defined in § 10.360;

(j) Any additional functions necessary to support the Subpart D Alert Message Requirements

\* \* \* \* \*

13. Amend § 10.520 by adding a new paragraph (f) to read as follows:

**§ 10.520 Common audio attention signal.**

\* \* \* \* \*

(f) Participating CMS Providers and mobile device manufacturers must provide alerting authorities with the option to send WEA Alert Messages without triggering the audio attention signal.

\* \* \* \* \*

14. Amend § 10.530 by adding a new paragraph (d) to read as follows:

**§ 10.530 Common vibration cadence.**

\* \* \* \* \*

(d) Participating CMS Providers and mobile device manufacturers must provide alerting authorities with the option to send WEA Alert Messages without triggering the common vibration cadence.

## APPENDIX B

## Initial Regulatory Flexibility Analysis

1. As required by the Regulatory Flexibility Act of 1980, as amended (RFA),

2. <sup>1</sup> the Commission has prepared this Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on a substantial number of small entities by the policies and rules proposed in the *Further Notice of Proposed Rulemaking (Further Notice)*. Written public comments are requested on this IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines for comments on the *Further Notice*. The Commission will send a copy of the *Further Notice*, including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration (SBA).<sup>2</sup> In addition, the *Further Notice* and IRFA (or summaries thereof) will be published in the *Federal Register*.<sup>3</sup>

**A. Need for, and Objectives of, the Proposed Rules**

3. The performance and accessibility of the nation's alert and warning systems is essential to helping safeguard the lives and property of all people. To ensure that Wireless Emergency Alerts (WEA) remain strong, the Commission must act proactively in its oversight of stakeholders associated with this system. The Commission has previously engaged with stakeholders to ensure that WEA had minimum performance minimums and to ensure WEA was accessible to Spanish speaking people. Moreover, approximately 26 million people who do not primarily speak English or Spanish are at risk because they cannot understand the potentially life-saving information conveyed by alert messages.<sup>4</sup> We believe we should take action to increase WEA's accessibility by ensuring minimum benchmarks are being met through performance reporting and providing alerts in additional languages. In the *Further Notice*, the Commission acts to 1) develop measurable goals and performance measures for WEA by proposing the adoption of WEA performance metrics and establishing the WEA Database and performance requirements, 2) making WEA more accessible by enhancing WEA's language support and effectiveness with multimedia content, and 3) integrating WEA more seamlessly into people's lives by improving active shooter and public health alerts, preventing unnecessary consumer opt-out, and facilitating more effective WEA public awareness exercises.

4. Specific proposals upon which the Commission seeks comment include: proposing definitions for reliability, accuracy, and speed, and setting benchmarks based on these definitions that Participating CMS Providers would be required to meet; requiring Participating CMS Providers to submit data regarding WEA availability and performance into a WEA Database to be shared with FEMA and authorized alerting authorities; translating alerts into the thirteen most commonly spoken languages in the United States and storing them at the mobile device to be displayed when an alerting authority deems relevant; sending thumbnail-sized images in alerts over the air; incorporating location-aware maps into WEA by utilizing an API; allowing alerting authorities to send alerts without the associated attention signal and vibration cadence; allowing consumers to cache their receipt of WEA; proposing to authorize two annual end-to-end WEA tests per Alerting authority; and on how our proposals in the *Notice* may

---

<sup>1</sup> See 5 U.S.C. § 603. The RFA, 5 U.S.C. §§ 601-612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996).

<sup>2</sup> See 5 U.S.C. § 603(a).

<sup>3</sup> See *id.*

<sup>4</sup> U.S. Census Bureau, *DP02 | Selected Social Characteristics in the United States* (2021), <https://data.census.gov/cedsci/table?q=DP02#>. Sandy Dietrich and Erik Hernandez, *Language Use in the United States: 2019*, pages 8, 14-15 (2022), <https://www.census.gov/content/dam/Census/library/publications/2022/acs/acs-50.pdf>; see also US Census Bureau, *The 2020 Census Speaks More Languages* (Mar. 9, 2020), <https://www.census.gov/newsroom/press-releases/2020/languages.html>.

promote or inhibit advances in diversity, equity, inclusion, and accessibility, as well as on the scope of the Commission's relevant legal authority.

## **B. Legal Basis**

5. The proposed action is authorized pursuant to sections 1, 2, 4(i), 4(n), 301, 303(b), 303(e), 303(g), 303(j), 303(r), 307, 309, 316, 403, and 706 of the Communications Act of 1934, as amended, 47 U.S.C §§ 151, 152, 154(i), 154(n), 301, 303(b), 303(e), 303(g), 303(j), 303(r), 307, 309, 316, 403, 544(g), and 606; The Warning, Alert and Response Network (WARN) Act, WARN Act §§ 602(a), (b), (c), (f), 603, 604, and 606, 47 U.S.C. §§ 1201(a),(b),(c), (f), 1203, 1204 and 1206.

## **C. Description and Estimate of the Number of Small Entities to Which the Proposed Rules Will Apply**

6. The RFA directs agencies to provide a description of and, where feasible, an estimate of, the number of small entities that may be affected by the proposed rules, if adopted.<sup>5</sup> The RFA generally defines the term “small entity” as having the same meaning as the terms “small business,” “small organization,” and “small governmental jurisdiction.”<sup>6</sup> In addition, the term “small business” has the same meaning as the term “small business concern” under the Small Business Act.<sup>7</sup> A “small business concern” is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the SBA.<sup>8</sup>

7. *Small Businesses, Small Organizations, Small Governmental Jurisdictions.* Our actions, over time, may affect small entities that are not easily categorized at present. We therefore describe here, at the outset, three broad groups of small entities that could be directly affected herein.<sup>9</sup> First, while there are industry specific size standards for small businesses that are used in the regulatory flexibility analysis, according to data from the Small Business Administration's (SBA) Office of Advocacy, in general a small business is an independent business having fewer than 500 employees.<sup>10</sup> These types of small businesses represent 99.9% of all businesses in the United States, which translates to 32.5 million businesses.<sup>11</sup>

8. Next, the type of small entity described as a “small organization” is generally “any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.”<sup>12</sup> The Internal Revenue Service (IRS) uses a revenue benchmark of \$50,000 or less to delineate its annual electronic filing requirements for small exempt organizations.<sup>13</sup> Nationwide, for tax year 2020, there

---

<sup>5</sup> See *id.* § 603(b)(3).

<sup>6</sup> See *id.* § 601(6).

<sup>7</sup> See *id.* § 601(3) (incorporating by reference the definition of “small-business concern” in the Small Business Act, 15 U.S.C. § 632). Pursuant to 5 U.S.C. § 601(3), the statutory definition of a small business applies “unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register.”

<sup>8</sup> 15 U.S.C. § 632.

<sup>9</sup> See 5 U.S.C. § 601(3)-(6).

<sup>10</sup> See SBA, Office of Advocacy, Frequently Asked Questions, “What is a small business?,” <https://cdn.advocacy.sba.gov/wp-content/uploads/2021/11/03093005/Small-Business-FAQ-2021.pdf> (Nov 2021).

<sup>11</sup> *Id.*

<sup>12</sup> See 5 U.S.C. § 601(4).

<sup>13</sup> The IRS benchmark is similar to the population of less than 50,000 benchmark in 5 U.S.C § 601(5) that is used to define a small governmental jurisdiction. Therefore, the IRS benchmark has been used to estimate the number small organizations in this small entity description. See Annual Electronic Filing Requirement for Small Exempt

were approximately 447,689 small exempt organizations in the U.S. reporting revenues of \$50,000 or less according to the registration and tax data for exempt organizations available from the IRS.<sup>14</sup>

9. Finally, the small entity described as a “small governmental jurisdiction” is defined generally as “governments of cities, counties, towns, townships, villages, school districts, or special districts, with a population of less than fifty thousand.”<sup>15</sup> U.S. Census Bureau data from the 2017 Census of Governments<sup>16</sup> indicate that there were 90,075 local governmental jurisdictions consisting of general purpose governments and special purpose governments in the United States.<sup>17</sup> Of this number there were 36,931 general purpose governments (county<sup>18</sup>, municipal and town or township<sup>19</sup>) with populations of less than 50,000 and 12,040 special purpose governments - independent school districts<sup>20</sup> with enrollment populations of less than 50,000.<sup>21</sup> Accordingly, based on the 2017 U.S. Census of Governments data, we estimate that at least 48,971 entities fall into the category of “small governmental jurisdictions.”<sup>22</sup>

(Continued from previous page)

Organizations — Form 990-N (e-Postcard), "Who must file," <https://www.irs.gov/charities-non-profits/annual-electronic-filing-requirement-for-small-exempt-organizations-form-990-n-e-postcard>. We note that the IRS data does not provide information on whether a small exempt organization is independently owned and operated or dominant in its field.

<sup>14</sup> See Exempt Organizations Business Master File Extract (EO BMF), "CSV Files by Region," <https://www.irs.gov/charities-non-profits/exempt-organizations-business-master-file-extract-eo-bmf>. The IRS Exempt Organization Business Master File (EO BMF) Extract provides information on all registered tax-exempt/non-profit organizations. The data utilized for purposes of this description was extracted from the IRS EO BMF data for businesses for the tax year 2020 with revenue less than or equal to \$50,000, for Region 1-Northeast Area (58,577), Region 2-Mid-Atlantic and Great Lakes Areas (175,272), and Region 3-Gulf Coast and Pacific Coast Areas (213,840) which includes the continental U.S., Alaska, and Hawaii. This data does not include information for Puerto Rico.

<sup>15</sup> See 5 U.S.C. § 601(5).

<sup>16</sup> See 13 U.S.C. § 161. The Census of Governments survey is conducted every five (5) years compiling data for years ending with “2” and “7”. See also Census of Governments, <https://www.census.gov/programs-surveys/cog/about.html>.

<sup>17</sup> See U.S. Census Bureau, 2017 Census of Governments – Organization Table 2. Local Governments by Type and State: 2017 [CG1700ORG02], <https://www.census.gov/data/tables/2017/econ/gus/2017-governments.html>. Local governmental jurisdictions are made up of general purpose governments (county, municipal and town or township) and special purpose governments (special districts and independent school districts). See also tbl.2. CG1700ORG02 Table Notes\_Local Governments by Type and State\_2017.

<sup>18</sup> See *id.* at tbl.5. County Governments by Population-Size Group and State: 2017 [CG1700ORG05], <https://www.census.gov/data/tables/2017/econ/gus/2017-governments.html>. There were 2,105 county governments with populations less than 50,000. This category does not include subcounty (municipal and township) governments.

<sup>19</sup> See *id.* at tbl.6. Subcounty General-Purpose Governments by Population-Size Group and State: 2017 [CG1700ORG06], <https://www.census.gov/data/tables/2017/econ/gus/2017-governments.html>. There were 18,729 municipal and 16,097 town and township governments with populations less than 50,000.

<sup>20</sup> See *id.* at tbl.10. Elementary and Secondary School Systems by Enrollment-Size Group and State: 2017 [CG1700ORG10], <https://www.census.gov/data/tables/2017/econ/gus/2017-governments.html>. There were 12,040 independent school districts with enrollment populations less than 50,000. See also tbl.4. Special-Purpose Local Governments by State Census Years 1942 to 2017 [CG1700ORG04], CG1700ORG04 Table Notes\_Special Purpose Local Governments by State\_Census Years 1942 to 2017.

<sup>21</sup> While the special purpose governments category also includes local special district governments, the 2017 Census of Governments data does not provide data aggregated based on population size for the special purpose governments category. Therefore, only data from independent school districts is included in the special purpose governments category.

10. *Wireless Telecommunications Carriers (except Satellite)*. This industry comprises establishments engaged in operating and maintaining switching and transmission facilities to provide communications via the airwaves.<sup>23</sup> Establishments in this industry have spectrum licenses and provide services using that spectrum, such as cellular services, paging services, wireless internet access, and wireless video services.<sup>24</sup> The SBA size standard for this industry classifies a business as small if it has 1,500 or fewer employees.<sup>25</sup> U.S. Census Bureau data for 2017 show that there were 2,893 firms in this industry that operated for the entire year.<sup>26</sup> Of that number, 2,837 firms employed fewer than 250 employees.<sup>27</sup> Additionally, based on Commission data in the 2021 Universal Service Monitoring Report, as of December 31, 2020, there were 797 providers that reported they were engaged in the provision of wireless services.<sup>28</sup> Of these providers, the Commission estimates that 715 providers have 1,500 or fewer employees.<sup>29</sup> Consequently, using the SBA's small business size standard, most of these providers can be considered small entities.

11. *Broadband Personal Communications Service*. The broadband personal communications services (PCS) spectrum encompasses services in the 1850-1910 and 1930-1990 MHz bands.<sup>30</sup> The closest industry with a SBA small business size standard applicable to these services is Wireless Telecommunications Carriers (except Satellite).<sup>31</sup> The SBA small business size standard for this industry classifies a business as small if it has 1,500 or fewer employees.<sup>32</sup> U.S. Census Bureau data for 2017 show that there were 2,893 firms that operated in this industry for the entire year.<sup>33</sup> Of this number, 2,837 firms employed fewer than 250 employees.<sup>34</sup> Thus under the SBA size standard, the Commission

(Continued from previous page) \_\_\_\_\_

<sup>22</sup> This total is derived from the sum of the number of general purpose governments (county, municipal and town or township) with populations of less than 50,000 (36,931) and the number of special purpose governments - independent school districts with enrollment populations of less than 50,000 (12,040), from the 2017 Census of Governments - Organizations tbls.5, 6 & 10.

<sup>23</sup> See U.S. Census Bureau, *2017 NAICS Definition*, "517312 Wireless Telecommunications Carriers (except Satellite)," <https://www.census.gov/naics/?input=517312&year=2017&details=517312>.

<sup>24</sup> *Id.*

<sup>25</sup> See 13 CFR § 121.201, NAICS Code 517312 (as of 10/1/22, NAICS Code 517112).

<sup>26</sup> See U.S. Census Bureau, *2017 Economic Census of the United States, Employment Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEEMPfirm, NAICS Code 517312, <https://data.census.gov/cedsci/table?y=2017&n=517312&tid=ECNSIZE2017.EC1700SIZEEMPfirm&hidePreview=false>.

<sup>27</sup> *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard.

<sup>28</sup> Federal-State Joint Board on Universal Service, Universal Service Monitoring Report at 26, Table 1.12 (2021), <https://docs.fcc.gov/public/attachments/DOC-379181A1.pdf>.

<sup>29</sup> *Id.*

<sup>30</sup> See 47 CFR § 24.200.

<sup>31</sup> See U.S. Census Bureau, *2017 NAICS Definition*, "517312 Wireless Telecommunications Carriers (except Satellite)," <https://www.census.gov/naics/?input=517312&year=2017&details=517312>.

<sup>32</sup> See 13 CFR § 121.201, NAICS Code 517312 (as of 10/1/22, NAICS Code 517112).

<sup>33</sup> See U.S. Census Bureau, *2017 Economic Census of the United States, Employment Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEEMPfirm, NAICS Code 517312, <https://data.census.gov/cedsci/table?y=2017&n=517312&tid=ECNSIZE2017.EC1700SIZEEMPfirm&hidePreview=false>.

<sup>34</sup> *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard.

estimates that a majority of licensees in this industry can be considered small.

12. Based on Commission data as of November 2021, there were approximately 5,060 active licenses in the Broadband PCS service.<sup>35</sup> The Commission's small business size standards with respect to Broadband PCS involve eligibility for bidding credits and installment payments in the auction of licenses for these services. In auctions for these licenses, the Commission defined "small business" as an entity that, together with its affiliates and controlling interests, has average gross revenues not exceeding \$40 million for the preceding three years, and a "very small business" as an entity that, together with its affiliates and controlling interests, has had average annual gross revenues not exceeding \$15 million for the preceding three years.<sup>36</sup> Winning bidders claiming small business credits won Broadband PCS licenses in C, D, E, and F Blocks.<sup>37</sup>

13. In frequency bands where licenses were subject to auction, the Commission notes that as a general matter, the number of winning bidders that qualify as small businesses at the close of an auction does not necessarily represent the number of small businesses currently in service. Further, the Commission does not generally track subsequent business size unless, in the context of assignments or transfers, unjust enrichment issues are implicated. Additionally, since the Commission does not collect data on the number of employees for licensees providing these, at this time we are not able to estimate the number of licensees with active licenses that would qualify as small under the SBA's small business size standard.

14. *Narrowband Personal Communications Services.* Narrowband Personal Communications Services (*Narrowband PCS*) are PCS services operating in the 901-902 MHz, 930-931 MHz, and 940-941 MHz bands.<sup>38</sup> PCS services are radio communications that encompass mobile and ancillary fixed communication that provide services to individuals and businesses and can be integrated with a variety of competing networks.<sup>39</sup> Wireless Telecommunications Carriers (*except Satellite*)<sup>40</sup> is the closest industry with a SBA small business size standard applicable to these services. The SBA small business size standard for this industry classifies a business as small if it has 1,500 or fewer employees.<sup>41</sup> U.S. Census Bureau data for 2017 show that there were 2,893 firms that operated in this industry for the entire year.<sup>42</sup> Of this number, 2,837 firms employed fewer than 250 employees.<sup>43</sup> Thus under the SBA size standard, the Commission estimates that a majority of licensees in this industry can be considered small.

---

<sup>35</sup> Based on a FCC Universal Licensing System search on November 16, 2021, <https://wireless2.fcc.gov/UlsApp/UlsSearch/searchAdvanced.jsp>. Search parameters: Service Group = All, "Match only the following radio service(s)", Radio Service = CW; Authorization Type = All; Status = Active. We note that the number of active licenses does not equate to the number of licensees. A licensee can have one or more licenses.

<sup>36</sup> See 47 CFR § 24.720(b).

<sup>37</sup> See Federal Communications Commission, Office of Economics and Analytics, Auctions, Auctions 4, 5, 10, 11, 22, 35, 58, 71 and 78, <https://www.fcc.gov/auctions>.

<sup>38</sup> See 47 CFR § 24.5.

<sup>39</sup> *Id.*

<sup>40</sup> See U.S. Census Bureau, 2017 NAICS Definition, "517312 Wireless Telecommunications Carriers (*except Satellite*)," <https://www.census.gov/naics/?input=517312&year=2017&details=517312>.

<sup>41</sup> See 13 CFR § 121.201, NAICS Code 517312 (as of 10/1/22, NAICS Code 517112).

<sup>42</sup> See U.S. Census Bureau, 2017 Economic Census of the United States, Employment Size of Firms for the U.S.: 2017, Table ID: EC1700SIZEEMPFIEM, NAICS Code 517312, <https://data.census.gov/cedsci/table?y=2017&n=517312&tid=ECNSIZE2017.EC1700SIZEEMPFIEM&hidePreview=false>.

<sup>43</sup> *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard.

15. According to Commission data as of December 2021, there were approximately 4,211 active *Narrowband PCS* licenses.<sup>44</sup> The Commission’s small business size standards with respect to *Narrowband PCS* involve eligibility for bidding credits and installment payments in the auction of licenses for these services. For the auction of these licenses, the Commission defined a “small business” as an entity that, together with affiliates and controlling interests, has average gross revenues for the three preceding years of not more than \$40 million.<sup>45</sup> A “very small business” is defined as an entity that, together with affiliates and controlling interests, has average gross revenues for the three preceding years of not more than \$15 million.<sup>46</sup> Pursuant to these definitions, 7 winning bidders claiming small and very small bidding credits won approximately 359 licenses.<sup>47</sup> One of the winning bidders claiming a small business status classification in these *Narrowband PCS* license auctions had an active license as of December 2021.<sup>48</sup>

16. In frequency bands where licenses were subject to auction, the Commission notes that as a general matter, the number of winning bidders that qualify as small businesses at the close of an auction does not necessarily represent the number of small businesses currently in service. Further, the Commission does not generally track subsequent business size unless, in the context of assignments or transfers, unjust enrichment issues are implicated. Additionally, since the Commission does not collect data on the number of employees for licensees providing these services, at this time we are not able to estimate the number of licensees with active licenses that would qualify as small under the SBA’s small business size standard.

17. *Wireless Communications Services*. Wireless Communications Services (WCS) can be used for a variety of fixed, mobile, radiolocation, and digital audio broadcasting satellite services. Wireless spectrum is made available and licensed for the provision of wireless communications services in several frequency bands subject to Part 27 of the Commission’s rules.<sup>49</sup> Wireless Telecommunications Carriers (*except* Satellite)<sup>50</sup> is the closest industry with a SBA small business size standard applicable to these services. The SBA small business size standard for this industry classifies a business as small if it has 1,500 or fewer employees.<sup>51</sup> U.S. Census Bureau data for 2017 show that there were 2,893 firms that

---

<sup>44</sup> Based on a FCC Universal Licensing System search on December 10, 2021, <https://wireless2.fcc.gov/UlsApp/UlsSearch/searchAdvanced.jsp>. Search parameters: Service Group = All, “Match only the following radio service(s)”, Radio Service = CN; Authorization Type = All; Status = Active. We note that the number of active licenses does not equate to the number of licensees. A licensee can have one or more licenses.

<sup>45</sup> See 47 CFR § 24.321(a)(1)-(2).

<sup>46</sup> *Id.*

<sup>47</sup> See Federal Communications Commission, Economics and Analytics, Auctions, Auction 41: Narrowband PCS, Summary, Closing Charts, License By Bidder,

<https://www.fcc.gov/sites/default/files/wireless/auctions/41/charts/41cls2.pdf>; Auction 50: Narrowband PCS, Summary, Closing Charts, License By Bidder,

<https://www.fcc.gov/sites/default/files/wireless/auctions/50/charts/50cls2.pdf>.

<sup>48</sup> Based on a FCC Universal Licensing System search on December 10, 2021, <https://wireless2.fcc.gov/UlsApp/UlsSearch/searchAdvanced.jsp>. Search parameters: Service Group = All, “Match only the following radio service(s)”, Radio Service = CN; Authorization Type = All; Status = Active. We note that the number of active licenses does not equate to the number of licensees. A licensee can have one or more licenses.

<sup>49</sup> See 47 CFR §§ 27.1 – 27.1607.

<sup>50</sup> See U.S. Census Bureau, *2017 NAICS Definition*, “517312 Wireless Telecommunications Carriers (*except* Satellite),” <https://www.census.gov/naics/?input=517312&year=2017&details=517312>.

<sup>51</sup> See 13 CFR § 121.201, NAICS Code 517312 (as of 10/1/22, NAICS Code 517112).

operated in this industry for the entire year.<sup>52</sup> Of this number, 2,837 firms employed fewer than 250 employees.<sup>53</sup> Thus under the SBA size standard, the Commission estimates that a majority of licensees in this industry can be considered small.

18. The Commission's small business size standards with respect to WCS involve eligibility for bidding credits and installment payments in the auction of licenses for the various frequency bands included in WCS. When bidding credits are adopted for the auction of licenses in WCS frequency bands, such credits may be available to several types of small businesses based average gross revenues (small, very small and entrepreneur) pursuant to the competitive bidding rules adopted in conjunction with the requirements for the auction and/or as identified in the designated entities section in Part 27 of the Commission's rules for the specific WCS frequency bands.<sup>54</sup>

19. In frequency bands where licenses were subject to auction, the Commission notes that as a general matter, the number of winning bidders that qualify as small businesses at the close of an auction does not necessarily represent the number of small businesses currently in service. Further, the Commission does not generally track subsequent business size unless, in the context of assignments or transfers, unjust enrichment issues are implicated. Additionally, since the Commission does not collect data on the number of employees for licensees providing these services, at this time we are not able to estimate the number of licensees with active licenses that would qualify as small under the SBA's small business size standard.

20. *700 MHz Guard Band Licensees.* The 700 MHz Guard Band encompasses spectrum in 746-747/776-777 MHz and 762-764/792-794 MHz frequency bands. Wireless Telecommunications Carriers (*except* Satellite)<sup>55</sup> is the closest industry with a SBA small business size standard applicable to licenses providing services in these bands. The SBA small business size standard for this industry classifies a business as small if it has 1,500 or fewer employees.<sup>56</sup> U.S. Census Bureau data for 2017 show that there were 2,893 firms that operated in this industry for the entire year.<sup>57</sup> Of this number, 2,837 firms employed fewer than 250 employees.<sup>58</sup> Thus under the SBA size standard, the Commission estimates that a majority of licensees in this industry can be considered small.

21. According to Commission data as of December 2021, there were approximately 224 active 700 MHz Guard Band licenses.<sup>59</sup> The Commission's small business size standards with respect to

---

<sup>52</sup> See U.S. Census Bureau, *2017 Economic Census of the United States, Employment Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEEMPFIEM, NAICS Code 517312, <https://data.census.gov/cedsci/table?y=2017&n=517312&tid=ECNSIZE2017.EC1700SIZEEMPFIEM&hidePreview=false>.

<sup>53</sup> *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard.

<sup>54</sup> See 47 CFR §§ 27.201 – 27.1601. The Designated entities sections in Subparts D – Q each contain the small business size standards adopted for the auction of the frequency band covered by that subpart.

<sup>55</sup> See U.S. Census Bureau, *2017 NAICS Definition*, “517312 Wireless Telecommunications Carriers (*except* Satellite),” <https://www.census.gov/naics/?input=517312&year=2017&details=517312>.

<sup>56</sup> See 13 CFR § 121.201, NAICS Code 517312 (as of 10/1/22, NAICS Code 517112).

<sup>57</sup> See U.S. Census Bureau, *2017 Economic Census of the United States, Employment Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEEMPFIEM, NAICS Code 517312, <https://data.census.gov/cedsci/table?y=2017&n=517312&tid=ECNSIZE2017.EC1700SIZEEMPFIEM&hidePreview=false>.

<sup>58</sup> *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard.

<sup>59</sup> Based on a FCC Universal Licensing System search on December 14, 2021, <https://wireless2.fcc.gov/UlsApp/UlsSearch/searchAdvanced.jsp>. Search parameters: Service Group = All, “Match (continued....)”

700 MHz Guard Band licensees involve eligibility for bidding credits and installment payments in the auction of licenses. For the auction of these licenses, the Commission defined a “small business” as an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding \$40 million for the preceding three years, and a “very small business” an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than \$15 million for the preceding three years.<sup>60</sup> Pursuant to these definitions, five winning bidders claiming one of the small business status classifications won 26 licenses, and one winning bidder claiming small business won two licenses.<sup>61</sup> None of the winning bidders claiming a small business status classification in these 700 MHz Guard Band license auctions had an active license as of December 2021.<sup>62</sup>

22. In frequency bands where licenses were subject to auction, the Commission notes that as a general matter, the number of winning bidders that qualify as small businesses at the close of an auction does not necessarily represent the number of small businesses currently in service. Further, the Commission does not generally track subsequent business size unless, in the context of assignments or transfers, unjust enrichment issues are implicated. Additionally, since the Commission does not collect data on the number of employees for licensees providing these services, at this time we are not able to estimate the number of licensees with active licenses that would qualify as small under the SBA’s small business size standard.

23. *Lower 700 MHz Band Licenses.* The lower 700 MHz band encompasses spectrum in the 698-746 MHz frequency bands. Permissible operations in these bands include flexible fixed, mobile, and broadcast uses, including mobile and other digital new broadcast operation; fixed and mobile wireless commercial services (including FDD- and TDD-based services); as well as fixed and mobile wireless uses for private, internal radio needs, two-way interactive, cellular, and mobile television broadcasting services.<sup>63</sup> Wireless Telecommunications Carriers (*except* Satellite)<sup>64</sup> is the closest industry with a SBA small business size standard applicable to licenses providing services in these bands. The SBA small business size standard for this industry classifies a business as small if it has 1,500 or fewer employees.<sup>65</sup> U.S. Census Bureau data for 2017 show that there were 2,893 firms that operated in this industry for the entire year.<sup>66</sup> Of this number, 2,837 firms employed fewer than 250 employees.<sup>67</sup> Thus under the SBA

(Continued from previous page)

only the following radio service(s)”, Radio Service = WX; Authorization Type = All; Status = Active. We note that the number of active licenses does not equate to the number of licensees. A licensee can have one or more licenses.

<sup>60</sup> See 47 CFR § 27.502(a).

<sup>61</sup> See Federal Communications Commission, Economics and Analytics, Auctions, Auction 33: Upper 700 MHz Guard Bands, Summary, Closing Charts, Licenses by Bidder, <https://www.fcc.gov/sites/default/files/wireless/auctions/33/charts/33cls2.pdf>, Auction 38: Upper 700 MHz Guard Bands, Summary, Closing Charts, Licenses by Bidder, <https://www.fcc.gov/sites/default/files/wireless/auctions/38/charts/38cls2.pdf>.

<sup>62</sup> Based on a FCC Universal Licensing System search on December 14, 2021, <https://wireless2.fcc.gov/UlsApp/UlsSearch/searchAdvanced.jsp>. Search parameters: Service Group = All, “Match only the following radio service(s)”, Radio Service = WX; Authorization Type = All; Status = Active. We note that the number of active licenses does not equate to the number of licensees. A licensee can have one or more licenses.

<sup>63</sup> See Federal Communications Commission, Economics and Analytics, Auctions, Auctions 44, 49, 60: Lower 700 MHz Band, Fact Sheet, Permissible Operations, <https://www.fcc.gov/auction/44/factsheet>, <https://www.fcc.gov/auction/49/factsheet>, <https://www.fcc.gov/auction/60/factsheet>.

<sup>64</sup> See U.S. Census Bureau, *2017 NAICS Definition*, “517312 Wireless Telecommunications Carriers (*except* Satellite),” <https://www.census.gov/naics/?input=517312&year=2017&details=517312>.

<sup>65</sup> See 13 CFR § 121.201, NAICS Code 517312 (as of 10/1/22, NAICS Code 517112).

<sup>66</sup> See U.S. Census Bureau, *2017 Economic Census of the United States, Employment Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEEMPFIEM, NAICS Code 517312,

(continued...)

size standard, the Commission estimates that a majority of licensees in this industry can be considered small.

24. According to Commission data as of December 2021, there were approximately 2,824 active Lower 700 MHz Band licenses.<sup>68</sup> The Commission's small business size standards with respect to Lower 700 MHz Band licensees involve eligibility for bidding credits and installment payments in the auction of licenses. For auctions of Lower 700 MHz Band licenses the Commission adopted criteria for three groups of small businesses. A very small business was defined as an entity that, together with its affiliates and controlling interests, has average annual gross revenues not exceeding \$15 million for the preceding three years, a small business was defined as an entity that, together with its affiliates and controlling interests, has average gross revenues not exceeding \$40 million for the preceding three years, and an entrepreneur was defined as an entity that, together with its affiliates and controlling interests, has average gross revenues not exceeding \$3 million for the preceding three years.<sup>69</sup> In auctions for Lower 700 MHz Band licenses seventy-two winning bidders claiming a small business classification won 329 licenses,<sup>70</sup> twenty-six winning bidders claiming a small business classification won 214 licenses,<sup>71</sup> and three winning bidders claiming a small business classification won all five auctioned licenses.<sup>72</sup>

25. In frequency bands where licenses were subject to auction, the Commission notes that as a general matter, the number of winning bidders that qualify as small businesses at the close of an auction does not necessarily represent the number of small businesses currently in service. Further, the Commission does not generally track subsequent business size unless, in the context of assignments or transfers, unjust enrichment issues are implicated. Additionally, since the Commission does not collect data on the number of employees for licensees providing these services, at this time we are not able to estimate the number of licensees with active licenses that would qualify as small under the SBA's small business size standard.

26. *Upper 700 MHz Band Licenses.* The upper 700 MHz band encompasses spectrum in the 746-806 MHz bands. Upper 700 MHz D Block licenses are nationwide licenses associated with the 758-763 MHz and 788-793 MHz bands.<sup>73</sup> Permissible operations in these bands include flexible fixed, mobile, and broadcast uses, including mobile and other digital new broadcast operation; fixed and mobile

(Continued from previous page)

<https://data.census.gov/cedsci/table?y=2017&n=517312&tid=ECNSIZE2017.EC1700SIZEEMPfirm&hidePreview=false>.

<sup>67</sup> *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard.

<sup>68</sup> Based on a FCC Universal Licensing System search on December 14, 2021, <https://wireless2.fcc.gov/UlsApp/UlsSearch/searchAdvanced.jsp>. Search parameters: Service Group = All, "Match only the following radio service(s)", Radio Service = WY, WZ; Authorization Type = All; Status = Active. We note that the number of active licenses does not equate to the number of licensees. A licensee can have one or more licenses.

<sup>69</sup> See 47 CFR § 27.702(a)(1)-(3).

<sup>70</sup> See Federal Communications Commission, Economics and Analytics, Auctions, Auction 44: Lower 700 MHz Guard Bands, Summary, Closing Charts, Licenses by Bidder, <https://www.fcc.gov/sites/default/files/wireless/auctions/44/charts/44cls2.pdf>.

<sup>71</sup> See Federal Communications Commission, Economics and Analytics, Auctions, Auction 49: Lower 700 MHz Guard Bands, Summary, Closing Charts, Licenses by Bidder, <https://www.fcc.gov/sites/default/files/wireless/auctions/49/charts/49cls2.pdf>.

<sup>72</sup> See Federal Communications Commission, Economics and Analytics, Auctions, Auction 60: Lower 700 MHz Guard Bands, Summary, Closing Charts, Licenses by Bidder, <https://www.fcc.gov/sites/default/files/wireless/auctions/60/charts/60cls2.pdf>.

<sup>73</sup> See 47 CFR § 27.4.

wireless commercial services (including FDD- and TDD-based services); as well as fixed and mobile wireless uses for private, internal radio needs, two-way interactive, cellular, and mobile television broadcasting services.<sup>74</sup> Wireless Telecommunications Carriers (*except Satellite*)<sup>75</sup> is the closest industry with a SBA small business size standard applicable to licenses providing services in these bands. The SBA small business size standard for this industry classifies a business as small if it has 1,500 or fewer employees.<sup>76</sup> U.S. Census Bureau data for 2017 show that there were 2,893 firms that operated in this industry for the entire year.<sup>77</sup> Of that number, 2,837 firms employed fewer than 250 employees.<sup>78</sup> Thus, under the SBA size standard, the Commission estimates that a majority of licensees in this industry can be considered small.

27. According to Commission data as of December 2021, there were approximately 152 active Upper 700 MHz Band licenses.<sup>79</sup> The Commission's small business size standards with respect to Upper 700 MHz Band licensees involve eligibility for bidding credits and installment payments in the auction of licenses. For the auction of these licenses, the Commission defined a "small business" as an entity that, together with its affiliates and controlling principals, has average gross revenues not exceeding \$40 million for the preceding three years, and a "very small business" an entity that, together with its affiliates and controlling principals, has average gross revenues that are not more than \$15 million for the preceding three years.<sup>80</sup> Pursuant to these definitions, three winning bidders claiming very small business status won five of the twelve available licenses.<sup>81</sup>

28. In frequency bands where licenses were subject to auction, the Commission notes that as a general matter, the number of winning bidders that qualify as small businesses at the close of an auction does not necessarily represent the number of small businesses currently in service. Further, the Commission does not generally track subsequent business size unless, in the context of assignments or transfers, unjust enrichment issues are implicated. Additionally, since the Commission does not collect data on the number of employees for licensees providing these services, at this time we are not able to estimate the number of licensees with active licenses that would qualify as small under the SBA's small business size standard.

---

<sup>74</sup> See Federal Communications Commission, Economics and Analytics, Auctions, Auction 73: 700 MHz Band, Fact Sheet, Permissible Operations, <https://www.fcc.gov/auction/73/factsheet>. We note that in Auction 73, Upper 700 MHz Band C and D Blocks as well as Lower 700 MHz Band A, B, and E Blocks were auctioned.

<sup>75</sup> See U.S. Census Bureau, *2017 NAICS Definition*, "517312 Wireless Telecommunications Carriers (*except Satellite*)," <https://www.census.gov/naics/?input=517312&year=2017&details=517312>.

<sup>76</sup> See 13 CFR § 121.201, NAICS Code 517312 (as of 10/1/22, NAICS Code 517112).

<sup>77</sup> See U.S. Census Bureau, *2017 Economic Census of the United States, Employment Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEEMPFIEM, NAICS Code 517312, <https://data.census.gov/cedsci/table?y=2017&n=517312&tid=ECNSIZE2017.EC1700SIZEEMPFIEM&hidePreview=false>.

<sup>78</sup> *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard.

<sup>79</sup> Based on a FCC Universal Licensing System search on December 14, 2021, <https://wireless2.fcc.gov/UlsApp/UlsSearch/searchAdvanced.jsp>. Search parameters: Service Group = All, "Match only the following radio service(s)", Radio Service = WP, WU; Authorization Type = All; Status = Active. We note that the number of active licenses does not equate to the number of licensees. A licensee can have one or more licenses.

<sup>80</sup> See 47 CFR § 27.502(a).

<sup>81</sup> See *Auction of 700 MHz Band Licenses Closes; Winning Bidders Announced for Auction 73*, Public Notice, DA-08-595, Attachment A, Report No. AUC-08-73-I (Auction 73) (March 20, 2008). The results for Upper 700 MHz Band C Block can be found on pp. 62-63.

29. *Advanced Wireless Services (AWS) - (1710–1755 MHz and 2110–2155 MHz bands (AWS-1); 1915–1920 MHz, 1995–2000 MHz, 2020–2025 MHz and 2175–2180 MHz bands (AWS-2); 2155–2175 MHz band (AWS-3); 2000-2020 MHz and 2180-2200 MHz (AWS-4)).* Spectrum is made available and licensed in these bands for the provision of various wireless communications services.<sup>82</sup> Wireless Telecommunications Carriers (*except Satellite*)<sup>83</sup> is the closest industry with a SBA small business size standard applicable to these services. The SBA small business size standard for this industry classifies a business as small if it has 1,500 or fewer employees.<sup>84</sup> U.S. Census Bureau data for 2017 show that there were 2,893 firms that operated in this industry for the entire year.<sup>85</sup> Of this number, 2,837 firms employed fewer than 250 employees.<sup>86</sup> Thus, under the SBA size standard, the Commission estimates that a majority of licensees in this industry can be considered small.

30. According to Commission data as December 2021, there were approximately 4,472 active AWS licenses.<sup>87</sup> The Commission’s small business size standards with respect to AWS involve eligibility for bidding credits and installment payments in the auction of licenses for these services. For the auction of AWS licenses, the Commission defined a “small business” as an entity with average annual gross revenues for the preceding three years not exceeding \$40 million, and a “very small business” as an entity with average annual gross revenues for the preceding three years not exceeding \$15 million.<sup>88</sup> Pursuant to these definitions, 57 winning bidders claiming status as small or very small businesses won 215 of 1,087 licenses.<sup>89</sup> In the most recent auction of AWS licenses 15 of 37 bidders qualifying for status as small or very small businesses won licenses.<sup>90</sup>

31. In frequency bands where licenses were subject to auction, the Commission notes that as a general matter, the number of winning bidders that qualify as small businesses at the close of an auction does not necessarily represent the number of small businesses currently in service. Further, the Commission does not generally track subsequent business size unless, in the context of assignments or transfers, unjust enrichment issues are implicated. Additionally, since the Commission does not collect data on the number of employees for licensees providing these services, at this time we are not able to estimate the number of licensees with active licenses that would qualify as small under the SBA’s small

---

<sup>82</sup> See 47 CFR § 27.1(b).

<sup>83</sup> See U.S. Census Bureau, *2017 NAICS Definition*, “517312 Wireless Telecommunications Carriers (*except Satellite*)” <https://www.census.gov/naics/?input=517312&year=2017&details=517312>.

<sup>84</sup> See 13 CFR § 121.201, NAICS Code 517312 (as of 10/1/22, NAICS Code 517112).

<sup>85</sup> See U.S. Census Bureau, *2017 Economic Census of the United States, Employment Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEEMPFIEM, NAICS Code 517312, <https://data.census.gov/cedsci/table?y=2017&n=517312&tid=ECNSIZE2017.EC1700SIZEEMPFIEM&hidePrevious=false>.

<sup>86</sup> *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard.

<sup>87</sup> Based on a FCC Universal Licensing System search on December 10, 2021, <https://wireless2.fcc.gov/UlsApp/UlsSearch/searchAdvanced.jsp>. Search parameters: Service Group = All, “Match only the following radio service(s)”, Radio Service = AD, AH, AT, AW; Authorization Type = All; Status = Active. We note that the number of active licenses does not equate to the number of licensees. A licensee can have one or more licenses.

<sup>88</sup> See 47 CFR §§ 27.1002, 27.1102, 27.1104, 27.1106.

<sup>89</sup> See Federal Communications Commission, Economics and Analytics, Auctions, Auction 66: Advanced Wireless Services (AWS-1), Summary, Spreadsheets, <https://www.fcc.gov/sites/default/files/wireless/auctions/66/charts/66cls2.pdf>.

<sup>90</sup> See *Auction of Advanced Wireless Services (AWS-3) Licenses Closes; Winning Bidders Announced for Auction 97*, Public Notice, DA-15-131, Attachments A-B, (Auction No. 97) (January 30, 2015).

business size standard.

32. *Broadband Radio Service and Educational Broadband Service.* Broadband Radio Service systems, previously referred to as Multipoint Distribution Service (MDS) and Multichannel Multipoint Distribution Service (MMDS) systems, and “wireless cable,”<sup>91</sup> transmit video programming to subscribers and provide two-way high speed data operations using the microwave frequencies of the Broadband Radio Service (BRS) and Educational Broadband Service (EBS) (previously referred to as the Instructional Television Fixed Service (ITFS)).<sup>92</sup> Wireless cable operators that use spectrum in the BRS often supplemented with leased channels from the EBS, provide a competitive alternative to wired cable and other multichannel video programming distributors. Wireless cable programming to subscribers resembles cable television, but instead of coaxial cable, wireless cable uses microwave channels.<sup>93</sup>

33. In light of the use of wireless frequencies by BRS and EBS services, the closest industry with a SBA small business size standard applicable to these services is Wireless Telecommunications Carriers (*except* Satellite).<sup>94</sup> The SBA small business size standard for this industry classifies a business as small if it has 1,500 or fewer employees.<sup>95</sup> U.S. Census Bureau data for 2017 show that there were 2,893 firms that operated in this industry for the entire year.<sup>96</sup> Of this number, 2,837 firms employed fewer than 250 employees.<sup>97</sup> Thus under the SBA size standard, the Commission estimates that a majority of licensees in this industry can be considered small.

34. According to Commission data as December 2021, there were approximately 5,869 active BRS and EBS licenses.<sup>98</sup> The Commission’s small business size standards with respect to BRS involves eligibility for bidding credits and installment payments in the auction of licenses for these services. For the auction of BRS licenses, the Commission adopted criteria for three groups of small businesses. A very small business is an entity that, together with its affiliates and controlling interests, has average annual gross revenues exceed \$3 million and did not exceed \$15 million for the preceding

---

<sup>91</sup> The use of the term “wireless cable” does not imply that it constitutes cable television for statutory or regulatory purposes.

<sup>92</sup> See 47 CFR § 27.4; see also *Amendment of Parts 21 and 74 of the Commission’s Rules with Regard to Filing Procedures in the Multipoint Distribution Service and in the Instructional Television Fixed Service and Implementation of Section 309(j) of the Communications Act—Competitive Bidding*, Report and Order, 10 FCC Rcd 9589, 9593, para. 7 (1995).

<sup>93</sup> Generally, a wireless cable system may be described as a microwave station transmitting on a combination of BRS and EBS channels to numerous receivers with antennas, such as single-family residences, apartment complexes, hotels, educational institutions, business entities and governmental offices. The range of the transmission depends upon the transmitter power, the type of receiving antenna and the existence of a line-of-sight path between the transmitter or signal booster and the receiving antenna.

<sup>94</sup> See U.S. Census Bureau, *2017 NAICS Definition*, “517312 Wireless Telecommunications Carriers (*except* Satellite),” <https://www.census.gov/naics/?input=517312&year=2017&details=517312>.

<sup>95</sup> See 13 CFR § 121.201, NAICS Code 517312 (as of 10/1/22, NAICS Code 517112).

<sup>96</sup> See U.S. Census Bureau, *2017 Economic Census of the United States, Employment Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEEMPFIEM, NAICS Code 517312, <https://data.census.gov/cedsci/table?y=2017&n=517312&tid=ECNSIZE2017.EC1700SIZEEMPFIEM&hidePreview=false>.

<sup>97</sup> *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard.

<sup>98</sup> Based on a FCC Universal Licensing System search on December 10, 2021, <https://wireless2.fcc.gov/UlsApp/UlsSearch/searchAdvanced.jsp>. Search parameters: Service Group = All, “Match only the following radio service(s)”, Radio Service =BR, ED; Authorization Type = All; Status = Active. We note that the number of active licenses does not equate to the number of licensees. A licensee can have one or more licenses.

three years, a small business is an entity that, together with its affiliates and controlling interests, has average gross revenues exceed \$15 million and did not exceed \$40 million for the preceding three years, and an entrepreneur is an entity that, together with its affiliates and controlling interests, has average gross revenues not exceeding \$3 million for the preceding three years.<sup>99</sup> Of the ten winning bidders for BRS licenses, two bidders claiming the small business status won 4 licenses, one bidder claiming the very small business status won three licenses and two bidders claiming entrepreneur status won six licenses.<sup>100</sup> One of the winning bidders claiming a small business status classification in the BRS license auction has an active licenses as of December 2021.<sup>101</sup>

35. The Commission's small business size standards for EBS define a small business as an entity that, together with its affiliates, its controlling interests and the affiliates of its controlling interests, has average gross revenues that are not more than \$55 million for the preceding five (5) years, and a very small business is an entity that, together with its affiliates, its controlling interests and the affiliates of its controlling interests, has average gross revenues that are not more than \$20 million for the preceding five (5) years.<sup>102</sup> In frequency bands where licenses were subject to auction, the Commission notes that as a general matter, the number of winning bidders that qualify as small businesses at the close of an auction does not necessarily represent the number of small businesses currently in service. Further, the Commission does not generally track subsequent business size unless, in the context of assignments or transfers, unjust enrichment issues are implicated. Additionally, since the Commission does not collect data on the number of employees for licensees providing these services, at this time we are not able to estimate the number of licensees with active licenses that would qualify as small under the SBA's small business size standard.

36. *The Educational Broadcasting Services.* Cable-based educational broadcasting services fall under the broad category of the Wired Telecommunications Carriers industry.<sup>103</sup> The Wired Telecommunications Carriers industry comprises establishments primarily engaged in operating and/or providing access to transmission facilities and infrastructure that they own and/or lease for the transmission of voice, data, text, sound, and video using wired telecommunications networks.<sup>104</sup> Transmission facilities may be based on a single technology or a combination of technologies.<sup>105</sup> Establishments in this industry use the wired telecommunications network facilities that they operate to

---

<sup>99</sup> See 47 CFR § 27.1218(a).

<sup>100</sup> See Federal Communications Commission, Economics and Analytics, Auctions, Auction 86: Broadband Radio Service, Summary, Reports, All Bidders, <https://www.fcc.gov/sites/default/files/wireless/auctions/86/charts/86bidder.xls>.

<sup>101</sup> Based on a FCC Universal Licensing System search on December 10, 2021, <https://wireless2.fcc.gov/UlsApp/UlsSearch/searchAdvanced.jsp>. Search parameters: Service Group = All, "Match only the following radio service(s)", Radio Service =BR; Authorization Type = All; Status = Active. We note that the number of active licenses does not equate to the number of licensees. A licensee can have one or more licenses.

<sup>102</sup> See 47 CFR § 27.1219(a).

<sup>103</sup> See U.S. Census Bureau, *2017 NAICS Definition*, "517311 Wired Telecommunications Carriers," <https://www.census.gov/naics/?input=517311&year=2017&details=517311>. Examples of this category are: broadband Internet service providers (e.g., cable, DSL); local telephone carriers (wired); cable television distribution services; long-distance telephone carriers (wired); closed circuit television (CCTV) services; VoIP service providers, using owner operated wired telecommunications infrastructure; direct-to-home satellite system (DTH) services; telecommunications carriers (wired); satellite television distribution systems; and multichannel multipoint distribution services (MMDS).

<sup>104</sup> *Id.*

<sup>105</sup> *Id.*

provide a variety of services, such as wired telephony services, including VoIP services; wired (cable) audio and video programming distribution; and wired broadband Internet services.”<sup>106</sup>

37. The SBA small business size standard for this industry classifies businesses having 1,500 or fewer employees as small.<sup>107</sup> U.S. Census Bureau data for 2017 show that there were 3,054 firms in this industry that operated for the entire year.<sup>108</sup> Of this total, 2,964 firms operated with fewer than 250 employees.<sup>109</sup> Thus, under this size standard, the majority of firms in this industry can be considered small. Additionally, according to Commission data as of December 2021, there were 4,477 active EBS licenses.<sup>110</sup> The Commission estimates that the majority of these licenses are held by non-profit educational institutions and school districts and are likely small entities.

38. *Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing.* This industry comprises establishments primarily engaged in manufacturing radio and television broadcast and wireless communications equipment.<sup>111</sup> Examples of products made by these establishments are: transmitting and receiving antennas, cable television equipment, GPS equipment, pagers, cellular phones, mobile communications equipment, and radio and television studio and broadcasting equipment.<sup>112</sup> The SBA small business size standard for this industry classifies businesses having 1,250 employees or less as small.<sup>113</sup> U.S. Census Bureau data for 2017 show that there were 656 firms in this industry that operated for the entire year.<sup>114</sup> Of this number, 624 firms had fewer than 250 employees.<sup>115</sup> Thus, under the SBA size standard, the majority of firms in this industry can be considered small.

39. *Software Publishers.* This industry comprises establishments primarily engaged in computer software publishing or publishing and reproduction.<sup>116</sup> Establishments in this industry carry out operations necessary for producing and distributing computer software, such as designing, providing

---

<sup>106</sup> *Id.*

<sup>107</sup> See 13 CFR § 121.201, NAICS Code 517311 (as of 10/1/22, NAICS Code 517111).

<sup>108</sup> See U.S. Census Bureau, *2017 Economic Census of the United States, Selected Sectors: Employment Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEEMPfirm, NAICS Code 517311, <https://data.census.gov/cedsci/table?y=2017&n=517311&tid=ECNSIZE2017.EC1700SIZEEMPfirm&hidePreview=false>.

<sup>109</sup> *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard.

<sup>110</sup> Based on a FCC Universal Licensing System search on December 17, 2021. <https://wireless2.fcc.gov/UlsApp/UlsSearch/searchAdvanced.jsp>. Search parameters: Service Group = All, “Match only the following radio service(s)”, Radio Service =ED; Authorization Type = All; Status = Active. We note that the number of active licenses does not equate to the number of licensees. A licensee can have one or more licenses.

<sup>111</sup> See U.S. Census Bureau, *2017 NAICS Definition, “334220 Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing,”* <https://www.census.gov/naics/?input=334220&year=2017&details=334220>.

<sup>112</sup> *Id.*

<sup>113</sup> See 13 CFR § 121.201, NAICS Code 334220.

<sup>114</sup> See U.S. Census Bureau, *2017 Economic Census of the United States, Employment Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEEMPfirm, NAICS Code 334220, <https://data.census.gov/cedsci/table?y=2017&n=334220&tid=ECNSIZE2017.EC1700SIZEEMPfirm&hidePreview=false>.

<sup>115</sup> *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard.

<sup>116</sup> See U.S. Census Bureau, *2017 NAICS Definition, “511210 Software Publishers,”* <https://www.census.gov/naics/?input=511210&year=2017&details=511210>.

documentation, assisting in installation, and providing support services to software purchasers.<sup>117</sup> These establishments may design, develop, and publish, or publish only.<sup>118</sup> The SBA small business size standard for this industry classifies businesses having annual receipts of \$41.5 million or less as small.<sup>119</sup> U.S. Census Bureau data for 2017 indicate that 7,842 firms in this industry operated for the entire year.<sup>120</sup> Of this number 7,226 firms had revenue of less than \$25 million.<sup>121</sup> Based on this data, we conclude that a majority of firms in this industry are small.

40. *Noncommercial Educational (NCE) and Public Broadcast Stations.* Noncommercial educational broadcast stations and public broadcast stations are television or radio broadcast stations which under the Commission's rules are eligible to be licensed by the Commission as a noncommercial educational radio or television broadcast station and are owned and operated by a public agency or nonprofit private foundation, corporation, or association; or are owned and operated by a municipality which transmits only noncommercial programs for education purposes.

41. The SBA small business size standards and U.S. Census Bureau data classify radio stations<sup>122</sup> and television broadcasting<sup>123</sup> separately and both categories may include both noncommercial and commercial stations. The SBA small business size standard for both radio stations and television broadcasting classify firms having \$41.5 million or less in annual receipts as small.<sup>124</sup> For Radio Stations, U.S. Census Bureau data for 2017 show that 1,879 of the 2,963 firms that operated during that year had revenue of less than \$25 million per year.<sup>125</sup> For Television Broadcasting, U.S. Census Bureau data for 2017 show that 657 of the 744 firms that operated for the entire year had revenue of less than

---

<sup>117</sup> *Id.*

<sup>118</sup> *Id.*

<sup>119</sup> See 13 CFR § 121.201, NAICS Code 511210 (as of 10/1/22, NAICS Code 513210).

<sup>120</sup> See U.S. Census Bureau, *2017 Economic Census of the United States, Selected Sectors: Sales, Value of Shipments, or Revenue Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEREVFIRM, NAICS Code 511210, <https://data.census.gov/cedsci/table?y=2017&n=511210&tid=ECNSIZE2017.EC1700SIZEREVFIRM&hidePreview=false>.

<sup>121</sup> *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard. We also note that according to the U.S. Census Bureau glossary, the terms receipts and revenues are used interchangeably, see [https://www.census.gov/glossary/#term\\_ReceiptsRevenueServices](https://www.census.gov/glossary/#term_ReceiptsRevenueServices).

<sup>122</sup> See U.S. Census Bureau, *2017 NAICS Definition, "515112 Radio Stations,"* <https://www.census.gov/naics/?input=515112&year=2017&details=515112>.

<sup>123</sup> See U.S. Census Bureau, *2017 NAICS Definition, "515120 Television Broadcasting,"* <https://www.census.gov/naics/?input=515120&year=2017&details=515120>.

<sup>124</sup> See 13 CFR § 121.201, NAICS Code 515112 (as of 10/1/22, NAICS Code 516110) (Radio Stations); NAICS Code 515120 (as of 10/1/22, NAICS Code 516120) (Television Broadcasting).

<sup>125</sup> See U.S. Census Bureau, *2017 Economic Census of the United States, Selected Sectors: Sales, Value of Shipments, or Revenue Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEREVFIRM, NAICS Code 515112, <https://data.census.gov/cedsci/table?y=2017&n=515112&tid=ECNSIZE2017.EC1700SIZEREVFIRM&hidePreview=false>. The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard. We note that the U.S. Census Bureau withheld publication of the number of firms that operated for the entire year. We also note that the U.S. Census Bureau withheld publication of the number of firms that operated with sales/value of shipments/revenue in the individual categories for less than \$100,000, and \$100,000 to \$249,999 to avoid disclosing data for individual companies (see Cell Notes for the sales/value of shipments/revenue in these categories). Therefore, the number of firms with revenue that meet the SBA size standard would be higher than noted herein. We further note that according to the U.S. Census Bureau glossary, the terms receipts and revenues are used interchangeably, see [https://www.census.gov/glossary/#term\\_ReceiptsRevenueServices](https://www.census.gov/glossary/#term_ReceiptsRevenueServices).

\$25,000,000.<sup>126</sup> While the U.S. Census Bureau data does not indicate the number of non-commercial stations, we estimate that under the applicable SBA size standard the majority of noncommercial educational broadcast stations and public broadcast stations are small entities.

42. According to Commission data as of December 31, 2022, there were 4,590 licensed noncommercial educational radio and television stations.<sup>127</sup> In addition, the Commission estimates as of December 31, 2022, there were 383 licensed noncommercial educational (NCE) television stations, 383 Class A TV stations, 1,912 LPTV stations and 3,122 TV translator stations.<sup>128</sup> The Commission does not compile and otherwise does not have access to financial information for these stations that permit it to determine how many stations qualify as small entities under the SBA small business size standards. However, given the nature of these services, we will presume that all noncommercial educational and public broadcast stations qualify as small entities under the above SBA small business size standards.

43. *Radio Stations.* This industry is comprised of “establishments primarily engaged in broadcasting aural programs by radio to the public.”<sup>129</sup> Programming may originate in their own studio, from an affiliated network, or from external sources.<sup>130</sup> The SBA small business size standard for this industry classifies firms having \$41.5 million or less in annual receipts as small.<sup>131</sup> U.S. Census Bureau data for 2017 show that 2,963 firms operated in this industry during that year.<sup>132</sup> Of this number, 1,879 firms operated with revenue of less than \$25 million per year.<sup>133</sup> Based on this data and the SBA’s small business size standard, we estimate a majority of such entities are small entities.

44. The Commission estimates that as of December 31, 2022, there were 4,484 licensed commercial AM radio stations and 6,686 licensed commercial FM radio stations, for a combined total of 11,170 commercial radio stations.<sup>134</sup> Of this total, 11,168 stations (or 99.98 %) had revenues of \$41.5

---

<sup>126</sup> See U.S. Census Bureau, *2017 Economic Census of the United States, Selected Sectors: Sales, Value of Shipments, or Revenue Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEREVFIRM, NAICS Code 515120, <https://data.census.gov/cedsci/table?y=2017&n=515120&tid=ECNSIZE2017.EC1700SIZEREVFIRM&hidePreview=false>. The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard. We also note that according to the U.S. Census Bureau glossary, the terms receipts and revenues are used interchangeably, see [https://www.census.gov/glossary/#term\\_ReceiptsRevenueServices](https://www.census.gov/glossary/#term_ReceiptsRevenueServices).

<sup>127</sup> *Broadcast Station Totals as of December 31, 2022*, Public Notice, DA 22-721 (rel. Jan. 11, 2022) (*December 2022 Broadcast Station Totals PN*), <https://www.fcc.gov/document/broadcast-station-totals-december-31-2022>.

<sup>128</sup> *Id.*

<sup>129</sup> See U.S. Census Bureau, *2017 NAICS Definition, “515112 Radio Stations,”* <https://www.census.gov/naics/?input=515112&year=2017&details=515112>.

<sup>130</sup> *Id.*

<sup>131</sup> See 13 CFR § 121.201, NAICS Code 515112 (as of 10/1/22, NAICS Code 516110).

<sup>132</sup> See U.S. Census Bureau, *2017 Economic Census of the United States, Selected Sectors: Sales, Value of Shipments, or Revenue Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEREVFIRM, NAICS Code 515112, <https://data.census.gov/cedsci/table?y=2017&n=515112&tid=ECNSIZE2017.EC1700SIZEREVFIRM&hidePreview=false>. We note that the US Census Bureau withheld publication of the number of firms that operated for the entire year.

<sup>133</sup> *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard. We note that the U.S. Census Bureau withheld publication of the number of firms that operated with sales/value of shipments/revenue in the individual categories for less than \$100,000, and \$100,000 to \$249,999 to avoid disclosing data for individual companies (see Cell Notes for the sales/value of shipments/revenue in these categories). Therefore, the number of firms with revenue that meet the SBA size standard would be higher than noted herein. We also note that according to the U.S. Census Bureau glossary, the terms receipts and revenues are used interchangeably, see [https://www.census.gov/glossary/#term\\_ReceiptsRevenueServices](https://www.census.gov/glossary/#term_ReceiptsRevenueServices).

<sup>134</sup> *Broadcast Station Totals as of December 31, 2022*, Public Notice, DA 22-721 (rel. Jan. 11, 2022) (*December 2022 Broadcast Station Totals PN*), <https://www.fcc.gov/document/broadcast-station-totals-december-31-2022>.

million or less in 2021, according to Commission staff review of the BIAKelsey Media Access Pro Online Database (MAPro) on January 13, 2023,<sup>135</sup> and therefore these licensees qualify as small entities under the SBA definition. In addition, the Commission estimates that as of December 31, 2022, there were 4,207 licensed noncommercial (NCE) FM radio stations, 2,015 low power FM (LPFM) stations, and 8,950 FM translators and boosters.<sup>136</sup> The Commission however does not compile, and otherwise does not have access to financial information for these radio stations that would permit it to determine how many of these stations qualify as small entities under the SBA small business size standard. Nevertheless, given the SBA's large annual receipts threshold for this industry and the nature of these radio station licensees, we presume that all of these entities qualify as small entities under the above SBA small business size standard.

45. We note, however, that in assessing whether a business concern qualifies as “small” under the above definition, business (control) affiliations<sup>137</sup> must be included. Our estimate, therefore, likely overstates the number of small entities that might be affected by our action, because the revenue figure on which it is based does not include or aggregate revenues from affiliated companies. In addition, another element of the definition of “small business” requires that an entity not be dominant in its field of operation. We are unable at this time to define or quantify the criteria that would establish whether a specific radio or television broadcast station is dominant in its field of operation. Accordingly, the estimate of small businesses to which the rules may apply does not exclude any radio or television station from the definition of a small business on this basis and is therefore possibly over-inclusive. An additional element of the definition of “small business” is that the entity must be independently owned and operated. Because it is difficult to assess these criteria in the context of media entities, the estimate of small businesses to which the rules may apply does not exclude any radio or television station from the definition of a small business on this basis and similarly may be over-inclusive.

46. *FM Translator Stations and Low-Power FM Stations.* FM translators and Low Power FM Stations are classified in the industry for Radio Stations.<sup>138</sup> The Radio Stations industry comprises establishments primarily engaged in broadcasting aural programs by radio to the public.<sup>139</sup> Programming may originate in their own studio, from an affiliated network, or from external sources.<sup>140</sup> The SBA small business size standard for this industry classifies firms having \$41.5 million or less in annual receipts as small.<sup>141</sup> U.S. Census Bureau data for 2017 show that 2,963 firms operated during that year.<sup>142</sup> Of that

---

<sup>135</sup> BIA Advisory Services, BIAKelsey Media Access Pro Online Radio Database, <http://www.biakelsey.com/data-platforms/media-access-pro> (last visited January 13, 2023).

<sup>136</sup> *Broadcast Station Totals as of December 31, 2022*, Public Notice, DA 22-721 (rel. Jan. 11, 2022) (*December 2022 Broadcast Station Totals PN*), <https://www.fcc.gov/document/broadcast-station-totals-december-31-2022>.

<sup>137</sup> “[Business concerns] are affiliates of each other when one concern controls or has the power to control the other or a third party or parties controls or has the power to control both.” 13 CFR § 21.103(a)(1).

<sup>138</sup> See U.S. Census Bureau, *2017 NAICS Definition, “515112 Radio Stations,”* <https://www.census.gov/naics/?input=515112&year=2017&details=515112>.

<sup>139</sup> *Id.*

<sup>140</sup> *Id.*

<sup>141</sup> See 13 CFR § 121.201, NAICS Code 515112 (as of 10/1/22, NAICS Code 516110).

<sup>142</sup> See U.S. Census Bureau, *2017 Economic Census of the United States, Selected Sectors: Sales, Value of Shipments, or Revenue Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEREVFIRM, NAICS Code 515112, <https://data.census.gov/cedsci/table?y=2017&n=515112&tid=ECNSIZE2017.EC1700SIZEREVFIRM&hidePreview=false>. We note that the US Census Bureau withheld publication of the number of firms that operated for the entire year.

number, 1,879 firms operated with revenue of less than \$25 million per year.<sup>143</sup> Therefore, based on the SBA's size standard we conclude that the majority of FM Translator stations and Low Power FM Stations are small. Additionally, according to Commission data, as of December 31, 2022, there were 8,950 FM Translator Stations and 2,015 Low Power FM licensed broadcast stations.<sup>144</sup> The Commission however does not compile and otherwise does not have access to information on the revenue of these stations that would permit it to determine how many of the stations would qualify as small entities. For purposes of this regulatory flexibility analysis, we presume the majority of these stations are small entities.

47. *Television Broadcasting.* This industry is comprised of “establishments primarily engaged in broadcasting images together with sound.”<sup>145</sup> These establishments operate television broadcast studios and facilities for the programming and transmission of programs to the public.<sup>146</sup> These establishments also produce or transmit visual programming to affiliated broadcast television stations, which in turn broadcast the programs to the public on a predetermined schedule. Programming may originate in their own studio, from an affiliated network, or from external sources. The SBA small business size standard for this industry classifies businesses having \$41.5 million or less in annual receipts as small.<sup>147</sup> 2017 U.S. Census Bureau data indicate that 744 firms in this industry operated for the entire year.<sup>148</sup> Of that number, 657 firms had revenue of less than \$25,000,000.<sup>149</sup> Based on this data we estimate that the majority of television broadcasters are small entities under the SBA small business size standard.

48. As of December 31, 2022, there were 1,375 licensed commercial television stations.<sup>150</sup> Of this total, 1,282 stations (or 93.2%) had revenues of \$41.5 million or less in 2021, according to Commission staff review of the BIAKelsey Media Access Pro Online Television Database (MAPro) on January 13, 2023,<sup>151</sup> and therefore these licensees qualify as small entities under the SBA definition. In addition, the Commission estimates as of December 31, 2022, there were 383 licensed noncommercial educational (NCE) television stations, 383 Class A TV stations, 1,912 LPTV stations and 3,122 TV

---

<sup>143</sup> *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard. We note that the U.S. Census Bureau withheld publication of the number of firms that operated with sales/value of shipments/revenue in the individual categories for less than \$100,000, and \$100,000 to \$249,999 to avoid disclosing data for individual companies (see Cell Notes for the sales/value of shipments/revenue in these categories). Therefore, the number of firms with annual receipts that meet the SBA size standard would be higher than noted herein. We also note that according to the U.S. Census Bureau glossary, the terms receipts and revenues are used interchangeably, see [https://www.census.gov/glossary/#term\\_ReceiptsRevenueServices](https://www.census.gov/glossary/#term_ReceiptsRevenueServices).

<sup>144</sup> *Broadcast Station Totals as of December 31, 2022*, Public Notice, DA 22-721 (rel. Jan. 11, 2022) (*December 2022 Broadcast Station Totals PN*), <https://www.fcc.gov/document/broadcast-station-totals-december-31-2022>.

<sup>145</sup> See U.S. Census Bureau, *2017 NAICS Definition, “515120 Television Broadcasting,”* <https://www.census.gov/naics/?input=515120&year=2017&details=515120>.

<sup>146</sup> *Id.*

<sup>147</sup> See 13 CFR § 121.201, NAICS Code 515120 (as of 10/1/22, NAICS Code 516120).

<sup>148</sup> See U.S. Census Bureau, *2017 Economic Census of the United States, Selected Sectors: Sales, Value of Shipments, or Revenue Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEREVFIRM, NAICS Code 515120, <https://data.census.gov/cedsci/table?y=2017&n=515120&tid=ECNSIZE2017.EC1700SIZEREVFIRM&hidePreview=false>.

<sup>149</sup> *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard. We also note that according to the U.S. Census Bureau glossary, the terms receipts and revenues are used interchangeably, see [https://www.census.gov/glossary/#term\\_ReceiptsRevenueServices](https://www.census.gov/glossary/#term_ReceiptsRevenueServices).

<sup>150</sup> *Broadcast Station Totals as of December 31, 2022*, Public Notice, DA 22-721 (rel. Jan. 11, 2022) (*December 2022 Broadcast Station Totals PN*), <https://www.fcc.gov/document/broadcast-station-totals-december-31-2022>.

<sup>151</sup> BIA Advisory Services, BIAKelsey Media Access Pro Online Television Database, <http://www.biakelsey.com/data-platforms/media-access-pro> (last visited on Jan. 13, 2023).

translator stations.<sup>152</sup> The Commission however does not compile, and otherwise does not have access to financial information for these television broadcast stations that would permit it to determine how many of these stations qualify as small entities under the SBA small business size standard. Nevertheless, given the SBA's large annual receipts threshold for this industry and the nature of these television station licensees, we presume that all of these entities qualify as small entities under the above SBA small business size standard.

49. *Cable and Other Subscription Programming.* The U.S. Census Bureau defines this industry as establishments primarily engaged in operating studios and facilities for the broadcasting of programs on a subscription or fee basis.<sup>153</sup> The broadcast programming is typically narrowcast in nature (e.g., limited format, such as news, sports, education, or youth-oriented). These establishments produce programming in their own facilities or acquire programming from external sources.<sup>154</sup> The programming material is usually delivered to a third party, such as cable systems or direct-to-home satellite systems, for transmission to viewers.<sup>155</sup> The SBA small business size standard for this industry classifies firms with annual receipts less than \$41.5 million as small.<sup>156</sup> Based on U.S. Census Bureau data for 2017, 378 firms operated in this industry during that year.<sup>157</sup> Of that number, 149 firms operated with revenue of less than \$25 million a year and 44 firms operated with revenue of \$25 million or more.<sup>158</sup> Based on this data, the Commission estimates that the majority of firms operating in this industry are small.

50. *Cable System Operators (Rate Regulation Standard).* The Commission has developed its own small business size standard for the purpose of cable rate regulation. Under the Commission's rules, a "small cable company" is one serving 400,000 or fewer subscribers nationwide.<sup>159</sup> Based on industry data, there are about 420 cable companies in the U.S.<sup>160</sup> Of these, only seven have more than 400,000 subscribers.<sup>161</sup> In addition, under the Commission's rules, a "small system" is a cable system serving

---

<sup>152</sup> *Broadcast Station Totals as of December 31, 2022*, Public Notice, DA 22-721 (rel. Jan. 11, 2022) (*December 2022 Broadcast Station Totals PN*), <https://www.fcc.gov/document/broadcast-station-totals-december-31-2022>.

<sup>153</sup> See U.S. Census Bureau, *2017 NAICS Definition*, "515210 Cable and Other Subscription Programming," <https://www.census.gov/naics/?input=515210&year=2017&details=515210>.

<sup>154</sup> *Id.*

<sup>155</sup> *Id.*

<sup>156</sup> See 13 CFR § 121.201, NAICS Code 515210.

<sup>157</sup> See U.S. Census Bureau, *2017 Economic Census of the United States, Selected Sectors: Sales, Value of Shipments, or Revenue Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEREVFIRM, NAICS Code 515210, <https://data.census.gov/cedsci/table?y=2017&n=515210&tid=ECNSIZE2017.EC1700SIZEREVFIRM&hidePreview=false>. The US Census Bureau withheld publication of the number of firms that operated for the entire year to avoid disclosing data for individual companies (see Cell Notes for this category).

<sup>158</sup> *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard. We note that the U.S. Census Bureau withheld publication of the number of firms that operated with sales/value of shipments/revenue in all categories of revenue less than \$500,000 to avoid disclosing data for individual companies (see Cell Notes for the sales/value of shipments/revenue in these categories). Therefore, the number of firms with revenue that meet the SBA size standard would be higher than noted herein. We also note that according to the U.S. Census Bureau glossary, the terms receipts and revenues are used interchangeably, see [https://www.census.gov/glossary/#term\\_ReceiptsRevenueServices](https://www.census.gov/glossary/#term_ReceiptsRevenueServices).

<sup>159</sup> 47 CFR § 76.901(d).

<sup>160</sup> S&P Global Market Intelligence, S&P Capital IQ Pro, U.S. MediaCensus, *Operator Subscribers by Geography* (last visited May 26, 2022).

<sup>161</sup> S&P Global Market Intelligence, S&P Capital IQ Pro, *Top Cable MSOs 12/21Q* (last visited May 26, 2022); S&P Global Market Intelligence, *Multichannel Video Subscriptions, Top 10* (April 2022).

15,000 or fewer subscribers.<sup>162</sup> Based on industry data, there are about 4,139 cable systems (headends) in the U.S.<sup>163</sup> Of these, about 639 have more than 15,000 subscribers.<sup>164</sup> Accordingly, the Commission estimates that the majority of cable companies and cable systems are small.

51. *Cable System Operators (Telecom Act Standard)*. The Communications Act of 1934, as amended, contains a size standard for a “small cable operator,” which is “a cable operator that, directly or through an affiliate, serves in the aggregate fewer than one percent of all subscribers in the United States and is not affiliated with any entity or entities whose gross annual revenues in the aggregate exceed \$250,000,000.”<sup>165</sup> For purposes of the Telecom Act Standard, the Commission determined that a cable system operator that serves fewer than 677,000 subscribers, either directly or through affiliates, will meet the definition of a small cable operator based on the cable subscriber count established in a 2001 Public Notice.<sup>166</sup> Based on industry data, only six cable system operators have more than 677,000 subscribers.<sup>167</sup> Accordingly, the Commission estimates that the majority of cable system operators are small under this size standard. We note however, that the Commission neither requests nor collects information on whether cable system operators are affiliated with entities whose gross annual revenues exceed \$250 million.<sup>168</sup> Therefore, we are unable at this time to estimate with greater precision the number of cable system operators that would qualify as small cable operators under the definition in the Communications Act.

52. *Satellite Telecommunications*. This industry comprises firms “primarily engaged in providing telecommunications services to other establishments in the telecommunications and broadcasting industries by forwarding and receiving communications signals via a system of satellites or reselling satellite telecommunications.”<sup>169</sup> Satellite telecommunications service providers include satellite and earth station operators. The SBA small business size standard for this industry classifies a business with \$35 million or less in annual receipts as small.<sup>170</sup> U.S. Census Bureau data for 2017 show that 275

---

<sup>162</sup> 47 CFR § 76.901(c).

<sup>163</sup> S&P Global Market Intelligence, S&P Capital IQ Pro, U.S. MediaCensus, *Operator Subscribers by Geography* (last visited May 26, 2022).

<sup>164</sup> S&P Global Market Intelligence, S&P Capital IQ Pro, *Top Cable MSOs 12/21Q* (last visited May 26, 2022).

<sup>165</sup> 47 U.S.C. § 543(m)(2).

<sup>166</sup> *FCC Announces New Subscriber Count for the Definition of Small Cable Operator*, Public Notice, 16 FCC Rcd 2225 (CSB 2001) (*2001 Subscriber Count PN*). In this Public Notice, the Commission determined that there were approximately 67.7 million cable subscribers in the United States at that time using the most reliable source publicly available. *Id.* We recognize that the number of cable subscribers changed since then and that the Commission has recently estimated the number of cable subscribers to be approximately 58.1 million. *See Communications Marketplace Report*, GN Docket No. 20-60, 2020 Communications Marketplace Report, 36 FCC Rcd 2945, 3049, para. 156 (2020) (*2020 Communications Marketplace Report*). However, because the Commission has not issued a public notice subsequent to the *2001 Subscriber Count PN*, the Commission still relies on the subscriber count threshold established by the *2001 Subscriber Count PN* for purposes of this rule. *See* 47 CFR § 76.901(e)(1).

<sup>167</sup> S&P Global Market Intelligence, S&P Capital IQ Pro, *Top Cable MSOs 12/21Q* (last visited May 26, 2022); S&P Global Market Intelligence, *Multichannel Video Subscriptions, Top 10* (April 2022).

<sup>168</sup> The Commission does receive such information on a case-by-case basis if a cable operator appeals a local franchise authority’s finding that the operator does not qualify as a small cable operator pursuant to § 76.901(e) of the Commission’s rules. *See* 47 CFR § 76.910(b).

<sup>169</sup> *See* U.S. Census Bureau, *2017 NAICS Definition*, “517410 Satellite Telecommunications,” <https://www.census.gov/naics/?input=517410&year=2017&details=517410>.

<sup>170</sup> *See* 13 CFR § 121.201, NAICS Code 517410.

firms in this industry operated for the entire year.<sup>171</sup> Of this number, 242 firms had revenue of less than \$25 million.<sup>172</sup> Additionally, based on Commission data in the 2021 Universal Service Monitoring Report, as of December 31, 2020, there were 71 providers that reported they were engaged in the provision of satellite telecommunications services.<sup>173</sup> Of these providers, the Commission estimates that approximately 48 providers have 1,500 or fewer employees.<sup>174</sup> Consequently using the SBA's small business size standard, a little more than of these providers can be considered small entities.

53. *All Other Telecommunications.* This industry is comprised of establishments primarily engaged in providing specialized telecommunications services, such as satellite tracking, communications telemetry, and radar station operation.<sup>175</sup> This industry also includes establishments primarily engaged in providing satellite terminal stations and associated facilities connected with one or more terrestrial systems and capable of transmitting telecommunications to, and receiving telecommunications from, satellite systems.<sup>176</sup> Providers of Internet services (e.g. dial-up ISPs) or voice over Internet protocol (VoIP) services, via client-supplied telecommunications connections are also included in this industry.<sup>177</sup> The SBA small business size standard for this industry classifies firms with annual receipts of \$35 million or less as small.<sup>178</sup> U.S. Census Bureau data for 2017 show that there were 1,079 firms in this industry that operated for the entire year.<sup>179</sup> Of those firms, 1,039 had revenue of less than \$25 million.<sup>180</sup> Based on this data, the Commission estimates that the majority of "All Other Telecommunications" firms can be considered small.

54. *Direct Broadcast Satellite ("DBS") Service.* DBS service is a nationally distributed subscription service that delivers video and audio programming via satellite to a small parabolic "dish" antenna at the subscriber's location. DBS is included in the Wired Telecommunications Carriers industry which comprises establishments primarily engaged in operating and/or providing access to transmission facilities and infrastructure that they own and/or lease for the transmission of voice, data, text, sound, and

---

<sup>171</sup> See U.S. Census Bureau, *2017 Economic Census of the United States, Selected Sectors: Sales, Value of Shipments, or Revenue Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEREVFIRM, NAICS Code 517410, <https://data.census.gov/cedsci/table?y=2017&n=517410&tid=ECNSIZE2017.EC1700SIZEREVFIRM&hidePreview=false>.

<sup>172</sup> *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard. We also note that according to the U.S. Census Bureau glossary, the terms receipts and revenues are used interchangeably, see [https://www.census.gov/glossary/#term\\_ReceiptsRevenueServices](https://www.census.gov/glossary/#term_ReceiptsRevenueServices).

<sup>173</sup> Federal-State Joint Board on Universal Service, Universal Service Monitoring Report at 26, Table 1.12 (2021), <https://docs.fcc.gov/public/attachments/DOC-379181A1.pdf>.

<sup>174</sup> *Id.*

<sup>175</sup> See U.S. Census Bureau, *2017 NAICS Definition, "517919 All Other Telecommunications,"* <https://www.census.gov/naics/?input=517919&year=2017&details=517919>.

<sup>176</sup> *Id.*

<sup>177</sup> *Id.*

<sup>178</sup> See 13 CFR § 121.201, NAICS Code 517919 (as of 10/1/22, NAICS Code 517810).

<sup>179</sup> See U.S. Census Bureau, *2017 Economic Census of the United States, Selected Sectors: Sales, Value of Shipments, or Revenue Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEREVFIRM, NAICS Code 517919, <https://data.census.gov/cedsci/table?y=2017&n=517919&tid=ECNSIZE2017.EC1700SIZEREVFIRM&hidePreview=false>.

<sup>180</sup> *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard. We also note that according to the U.S. Census Bureau glossary, the terms receipts and revenues are used interchangeably, see [https://www.census.gov/glossary/#term\\_ReceiptsRevenueServices](https://www.census.gov/glossary/#term_ReceiptsRevenueServices).

video using wired telecommunications networks.<sup>181</sup> Transmission facilities may be based on a single technology or combination of technologies.<sup>182</sup> Establishments in this industry use the wired telecommunications network facilities that they operate to provide a variety of services, such as wired telephony services, including VoIP services, wired (cable) audio and video programming distribution; and wired broadband internet services.<sup>183</sup> By exception, establishments providing satellite television distribution services using facilities and infrastructure that they operate are included in this industry.<sup>184</sup>

55. The SBA small business size standard for Wired Telecommunications Carriers classifies firms having 1,500 or fewer employees as small.<sup>185</sup> U.S. Census Bureau data for 2017 show that 3,054 firms operated in this industry for the entire year.<sup>186</sup> Of this number, 2,964 firms operated with fewer than 250 employees.<sup>187</sup> Based on this data, the majority of firms in this industry can be considered small under the SBA small business size standard. According to Commission data however, only two entities provide DBS service - DIRECTV (owned by AT&T) and DISH Network, which require a great deal of capital for operation.<sup>188</sup> DIRECTV and DISH Network both exceed the SBA size standard for classification as a small business. Therefore, we must conclude based on internally developed Commission data, in general DBS service is provided only by large firms.

#### **D. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements for Small Entities**

56. We expect the actions proposed in the *Further Notice*, if adopted, will impose additional reporting, recordkeeping and other compliance obligations on small as well as other entities who are Participating CMS Providers voluntarily participating in WEA.

57. At this time the Commission cannot quantify the cost of compliance for small entities to comply with the proposals and all of the matters that we seek comment on in the *Further Notice*. However, we have conducted an analysis estimating the total costs that would be incurred by all Participating CMS providers as a group. We anticipate that the proposed rules will result in costs associated with modifying standards and software, and recordkeeping and reporting costs for Participating CMS Providers. In the *Further Notice*, we seek comment whether adopting all these proposals as a package may result in a cost savings as opposed to having to modify standards and software in response to several, incremental policy changes. Based on our analysis, it is likely that small entities will have to

---

<sup>181</sup> See U.S. Census Bureau, *2017 NAICS Definition, "517311 Wired Telecommunications Carriers,"* <https://www.census.gov/naics/?input=517311&year=2017&details=517311>.

<sup>182</sup> *Id.*

<sup>183</sup> See *id.* Included in this industry are: broadband Internet service providers (e.g., cable, DSL); local telephone carriers (wired); cable television distribution services; long-distance telephone carriers (wired); closed-circuit television (CCTV) services; VoIP service providers, using own operated wired telecommunications infrastructure; direct-to-home satellite system (DTH) services; telecommunications carriers (wired); satellite television distribution systems; and multichannel multipoint distribution services (MMDS).

<sup>184</sup> *Id.*

<sup>185</sup> See 13 CFR § 121.201, NAICS Code 517311.

<sup>186</sup> See U.S. Census Bureau, *2017 Economic Census of the United States, Selected Sectors: Employment Size of Firms for the U.S.: 2017*, Table ID: EC1700SIZEEMPfirm, NAICS Code 517311, <https://data.census.gov/cedsci/table?y=2017&n=517311&tid=ECNSIZE2017.EC1700SIZEEMPfirm&hidePreview=false>.

<sup>187</sup> *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard.

<sup>188</sup> See *Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming, Eighteenth Report*, Table III.A.5, 32 FCC Rcd 568, 595 (Jan. 17, 2017).

hire professionals to comply with our proposals, if adopted. Below we discuss some anticipated reporting, recordkeeping and other compliance obligations and our cost analysis estimating certain costs.

58. *WEA Database.* The Commission proposes the creation of a Commission-hosted WEA Database that would contain WEA availability and performance information. All small and other Participating CMS Providers would be required to report their level of WEA participation in the WEA Database regardless of whether they elect to transmit WEA messages. Participating CMS Providers that elect to transmit WEA alert messages will be required to elect to participate and electronically file the participation election in the WEA Database. Participating CMS Providers' WEA election should state whether they elect to participate in WEA in whole, in part, or whether they elect not to participate. Their filings would also be required to identify the entities on behalf of which they are filing (including the subsidiary companies on behalf of which their election is filed, the "doing business as" names under which the Participating CMS Provider offers WEA, and the Mobile Virtual Network Operators (MVNOs) and wireless resellers through which the Participating CMS Provider offers WEA), specify the geographic locations in which they do and do not offer WEA, and identify the mobile devices that the Participating CMS Provider offers that are WEA-capable. We also propose to require that Participating CMS Providers' WEA Database filing include the names of all wireless service providers that use their network to deliver WEA messages to the public (or do not deliver WEA messages at all, in the case of entities electing not to participate in WEA) and identify all mobile devices that the Participating CMS Provider offers that are WEA-capable. Additionally, we propose to require small and other Participating CMS Providers to update the WEA Database within 30 days of any change in their participation in WEA.

59. *Performance Measures Reporting.* In the *Further Notice*, we propose performance measures for reliability, accuracy, and speed that small and other Participating CMS Providers will be required to meet for each WEA message it sends and to provide performance data to the Commission

60. *Language and Multimedia Support.* To make WEA messages more accessible and to expand their reach, in the *Further Notice* we propose to require small and other Participating CMS Providers' WEA-capable mobile devices to translate English-language alert messages that they receive into the subscriber's default language preference. If adopted, compliance with this obligation will require small and other Participating CMS providers to support Chinese, Tagalog, Vietnamese, Arabic, French, Korean, Russian, Haitian Creole, German, Hindi, Portuguese, and Italian, in addition to English and Spanish alerts. Our proposed requirements that Participating CMS Providers transmit "thumbnail-sized" images in WEA alert messages could also improve accessibility for individuals with disabilities and individuals that do not speak English. To comply with our proposed multimedia support requirement small and other Participating CMS Providers would also be required support mobile devices' presentation of maps that include at least the following elements: shape of the target area; user location relative to the target area and a graphical representation of the geographic area in which both the targeted area and user are located.

61. *Cost Estimates.* The Commission estimates a \$39.9 million one-time cost for all Participating CMS Providers to update the WEA standards and software necessary to comply with our proposed WEA availability reporting, automated WEA performance reporting, support for template alerting in the twelve most common languages in addition to English and Spanish, support for multimedia infographic alerting, support for incorporating location-aware maps into WEA through an API, enabling of alerting authorities to send alerts without the associated attention signal, allowing of consumers to cache their receipt of WEA, and support for additional testing. This figure consists of approximately \$814,000 to update the applicable WEA standards and approximately \$39.1 million to update the applicable software. The Commission estimates a \$422,500 annually recurring cost for all Participating CMS Providers to report WEA availability and performance information to the WEA Database. This figure consists of approximately \$139,000 to report information about the availability of WEA and \$285,500 to report information about WEA's performance.

62. We derived the one-time \$39.9 million cost estimate based on several calculations. Our estimate to update the applicable WEA standards is based on the cost of modifying standards using annual

compensation for 30 network engineers compensated at the national average for their field (\$120,650/year or \$58/hour), plus annual benefits (\$60,325/year or 29/hour) working for the amount of time that it takes to develop a standard (one hour every other week for one year, 26 hours) for 12 distinct standards.<sup>189</sup> Our cost estimate to implement the necessary software changes calculated the cost of modifying software as the annual compensation for a software developer compensated at the national average for their field (\$120,990/year), plus annual benefits (\$60,495/year) working for the amount of time that it takes to develop software (ten months) at each of the 76 CMS Providers that participate in WEA.<sup>190</sup> Our cost estimate to test these modifications (including integration testing, unit testing and failure testing) is based on using 12 software developer compensated at the national average for their field (\$120,650/year or \$58/hour), plus annual benefits (\$60,325/year or 29/hour) working for two months at each of the 76 CMS Providers that participate in WEA.<sup>191</sup>

63. In the Supporting Document of Study Area Boundary Data Reporting in Esri Shapefile Format, the Office of Information and Regulatory Affairs estimates that it takes an average of 26 hours for a data scientist to modify a shapefile.<sup>192</sup> We believe submitting WEA availability information in shapefile format should require less time than modifying a shapefile. Therefore, we believe 26 hours would be an upper bound of the time required for a Participating CMS Provider to report its WEA availability in shapefile format. Given that the median wage rate is \$48.52/hour for data scientists,<sup>193</sup> with a 45% markup for benefits,<sup>194</sup> we arrive at \$70.40 as the hourly compensation rate for a data scientist. We estimate an aggregate cost of WEA availability reporting to be approximately \$139,000 ( $\approx$  \$70.40 per

---

<sup>189</sup> This is calculated as follows: 30 network engineers x (\$58 + \$29) per hour per network engineer x 26 hours per standard x 12 standards = \$814,320, a figure that we round to \$814,000 to avoid the false appearance of precision in our estimate. See [Bureau of Labor Statistics Employer Costs for Employee Compensation Summary, Computer Network Architect \(May 2021\)](https://www.bls.gov/oes/current/oes151241.htm), <https://www.bls.gov/oes/current/oes151241.htm> (last visited Aug. 25, 2022) (stating that the average base salary for a computer network architect is \$120,730/yr); Letter from Tom Goode, General Counsel, ATIS, to Marlene Dortch, Secretary, FCC, PS Docket No. 15-91, at 1 (filed Sep. 6, 2016) (stating that, when standards need to be modified for WEA, it would be common practice for groups of approximately 30 individuals with relevant technical expertise meet approximately bi-weekly for an hour to discuss the modifications); *Wireless Emergency Alerts; Amendments to Part 11 of the Commission's Rules Regarding the Emergency Alert System*, PS Docket Nos. 15-91, 15-94, Second Report and Order and Second Order on Reconsideration, 33 FCC Red 1320, 1344-45, para. 33, n.154 (2018) (listing the 12 WEA standards).

<sup>190</sup> This is calculated as follows: (\$120,650 + \$60,325) annually per Participating CMS Provider x 10 months / 12 months per year x 76 Participating CMS Providers = \$11,461,750. See Bureau of Labor Statistics Employer Costs for Employee Compensation Summary, Software Developers, (May 2021) <https://www.bls.gov/oes/current/oes151252.htm>, (last visited Aug. 25, 2022) (stating that the average base salary for a software developer is \$120,730/year, which results in total compensation of \$180,960 when benefits are included); Verizon, PS Docket No. 15-91, Comments, PS Docket No. 15-91, at 5 (Jan. 13, 2016) (stating that it takes manufacturers and vendors 12 months to incorporate WEA standards into their products and test them); FCC, *Master WEA Registry*, <https://www.fcc.gov/files/weamasterregistry112019.xls> (last visited Aug. 19, 2022) (reflecting that 76 CMS Providers participate in WEA either in whole or in part).

<sup>191</sup> This is calculated as follows: 12 software developers x (\$120,650 + \$60,325) annually per Participating CMS Provider x 2 months / 12 months per year x 76 Participating CMS Providers = \$27,508,200. *Id.*

<sup>192</sup> See Office of Information and Regulatory Affairs, Office of Management and Budget Executive Office of the President, 2022 Study Area Boundary Data Reporting in Esri Shapefile Format DA 12-1777 and DA 13-282, Supporting Statement - OMB Control No. 3060-1181, at 5- paras. 12 (Feb. 15, 2022), [https://www.reginfo.gov/public/do/PRAViewDocument?ref\\_nbr=202202-3060-009](https://www.reginfo.gov/public/do/PRAViewDocument?ref_nbr=202202-3060-009).

<sup>193</sup> We use the Bureau of Labor Statistics median wage for data scientists, which they estimate at \$48.52. See Bureau of Labor Statistics, *Occupational Employment Statistics*, <https://www.bls.gov/oes/current/oes152051.htm> (last visited Mar. 9, 2023).

<sup>194</sup> See *Compensation Benefit Mark-up*.

hour x 26 hours x 76 providers), which may be recurring on an annual basis since availability may change and need to be updated over time.

64. We expect that the process of data collection and data submission would require minimal human intervention. Although we anticipate such performance reporting would be largely automated once it is set up, we estimate a routine administrative monitoring cost that Participating CMS Providers may still incur when they file the performance report for each alert incident. We estimate that, for each alert, a provider will need an office administrator, who is compensated at \$27 hour, to spend 0.5 hours in monitoring each data transmission. At the aggregate level, we believe there will be 21,000 performance reports transmitted to the WEA database, resulting in a \$283,500 annual recurring cost at the aggregate level.<sup>195</sup>

65. To help the Commission more fully evaluate the cost of compliance for small entities should our proposals be adopted, in the *Further Notice*, we request comments on the cost implications of our proposals and ask whether there are more efficient and less burdensome alternatives (including cost estimates) for the Commission to consider. We expect the information we received in comments including cost and benefit analyses, to help the Commission identify and evaluate relevant matters for small entities, including compliance costs and other burdens that may result from the proposals and inquiries we make in the *Further Notice*.

#### **E. Steps Taken to Minimize the Significant Economic Impact on Small Entities, and Significant Alternatives Considered**

66. The RFA requires an agency to describe any significant, specifically small business alternatives that it has considered in reaching its proposed approach, which may include the following four alternatives (among others): “(1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance or reporting requirements under the rule for such small entities; (3) the use of performance, rather than design, standards; and (4) and exemption from coverage of the rule, or any part thereof, for such small entities.”<sup>196</sup>

67. The Commission has taken steps to minimize the impact of the proposals in the *Further Notice* as a general matter, and specifically targeting small entities, has sought comment on the extent to which we can limit the overall economic impact of these proposed requirements if we provide increased flexibility for small entities. We believe that the proposals to improve and enhance WEA in the *Further Notice*, are the most efficient and least burdensome approach. Below we discuss some specific actions taken and alternatives considered by the Commission in the *Further Notice*.

68. *Making WEA More Accessible*. Our proposals to make WEA more accessible considered feedback and information from industry participants and the Communications Security, Reliability and Interoperability Council VIII (CSRIC VIII)<sup>197</sup> which provided real-world insight to better inform the

---

<sup>195</sup> Given that WEA was used 70,000 times over the last decade, we estimate that 7,000 alerts (= 70,000 / 10 years) were issued per year. According to 2022 Communications Marketplace Report, nearly 95% of consumers have at least three wireless provider options in their areas. See *Communications Marketplace Report* et al., GN Docket No. 22-203, Report, FCC 22-103, at 110, Fig. II.B.37 (Dec. 30, 2022), <https://www.fcc.gov/document/2022-communications-marketplace-report>. Therefore, we estimate that the total number of performance reports that need to be filed would be 21,000 (=7,000 alerts x 3 providers per alert). Assuming each alert take an additional 0.5 hours for an office administrator to process for Participating CMS Provider at a compensation rate of \$27 per hour, the total additional recurring cost is \$283,500 (= \$27/hour x 0.5 hours x 21,000 reports) per year. See *Office Administrator Compensation*.

<sup>196</sup> 5 U.S.C. § 603(c)(1)-(4).

<sup>197</sup> See Communications Security, Reliability, and Interoperability Council VIII, *Report on WEA Performance Reporting* (2022) <https://www.fcc.gov/file/24518/download> (CSRIC VIII Report on WEA Performance Reporting).

Commission on currently available technologies that could be leveraged to accomplish our objectives in a cost-effective manner. Requiring small and other Participating CMS providers to support the most common languages spoken in the U.S. is based on our belief that machine language translation technologies have matured sufficient to support such a requirement.<sup>198</sup> Industry information supports our belief<sup>199</sup> and CSRIC VIII reports Participating CMS Providers may be able to leverage machine translation technologies such as Google Cloud Translation and Apple Translate that is pre-installed on many WEA-capable mobile devices using an application programming interface (API) to make WEA messages accessible to every major language group in the U.S.<sup>200</sup> Our proposal of the expanded language support requirement with an approach that gives small Participating CMS Providers the potential to leverage existing technologies that are already pre-installed in many of their WEA capable handsets should reduce the economic impact for small Participating CMS Providers.

69. To support multilingual WEA, we also considered template-based alerts which are being utilized by the New York City Emergency Management Department through its Notify NYC application to support multilingual alerting in 14 different languages. This application presents an English-language message, along with a link to 13 other pre-scripted translations. The alert message translations have been written by people fluent in the languages and vetted with native speakers from language communities.<sup>201</sup> In the *Further Notice* we seek comment on our proposed requirement and on alternative approaches to promoting multilingual WEA.

70. *More Seamless Integration of WEA.* To integrate WEA more seamlessly into people's lives we took actions to facilitate more effective WEA public awareness exercises. We propose allowing small and other Participating CMS Providers to support up to two annual end-to-end WEA tests per alerting authority that the consumers receive by default, provided that the alerting authority: 1) conducts outreach and notifies the public in advance of the planned WEA test and that no emergency is, in fact, occurring; 2) include in its test message that the alert is only a test; 3) coordinates the test among Participating CMS Providers, state and local emergency authorities, relevant State Emergency Communications Committees (SECCs), and first responder organizations, and 4) provides notification to the public in widely accessible formats that the test is only a test. If adopted, this proposal would remove the requirement for small and other alerting authorities to request waiver for up to two annual end-to-end WEA tests and the associated costs of making such a request. Moreover, the proposed conditions are the

---

<sup>198</sup> When the Commission last sought comment on the accuracy of machine translation in 2016, commenters suggested the technology was not mature enough for use in emergency communications. *See* Apple 2016 Reply Comments at 6 n.21; AT&T 2016 Comments at 16-17; NCMC 2016 *Ex Parte* at 2; NYCEM 2016 *Ex Parte* at 3.

<sup>199</sup> Letter from Rhonda J. Johnson, Executive Vice President, Federal Regulatory Affairs, AT&T, to Jessica Rosenworcel, Chairwoman, FCC, at 4-5 (Rec. Feb. 27, 2023) (stating “[w]e believe that software translation technologies are sufficiently mature to effectively support the translation of WEA alerts into the most commonly spoken languages” and “[i]n the future . . . [an] alert could be broadcast in English and automatically translated into the default language for the user’s device by a WEA application”). *See also* Letter from Chemu Langat, Chief Operating Officer and Vice President, Quality and Regulatory, Best Buy Health, Inc., to Jessica Rosenworcel, Chairwoman, FCC, at 3 (Rec. Feb. 27, 2023) (“[b]ased upon input from our technical teams, we believe it is possible that machine translation technologies could be leveraged to translate emergency alert messages into commonly spoken languages . . . our technology teams have not opined on whether existing machine translation technologies operate with a high-enough degree of accuracy to safely enable multilingual WEAs”); Darah Franklin, Counsel, Google North America Inc., to Jessica Rosenworcel, Chairwoman, FCC, at 2 (Rec. Feb. 27, 2023) (“machine translations technologies can be used to scale translation capabilities, but accuracy and reliability varies across ML-based translation providers/implementations.”).

<sup>200</sup> *See* Darah Franklin, Counsel, Google North America Inc., to Jessica Rosenworcel, Chairwoman, FCC, at 2 (Rec. Feb. 27, 2023).

<sup>201</sup> *See, e.g.*, Pacific ADA Center, Webinar: FEMA Promising Practice: Strategies for Effective Communication with People who are Deaf or Hard of Hearing in Emergencies, Transcript (Jul. 14 2016), [https://adapresentations.org/doc/7\\_14\\_16/Transcript\\_7\\_14\\_16.pdf](https://adapresentations.org/doc/7_14_16/Transcript_7_14_16.pdf).

same conditions applicable for alerting authorities to conduct EAS Live Code Tests.<sup>202</sup>

71. *Establishing a WEA Database to Promote Transparency about WEA Availability and Benchmark WEA Performance.* In the *Further Notice* we propose to adopt reliability, accuracy and speed benchmarks for WEA, and performance minimums that small and other Participating CMS Providers must satisfy to improve the effectiveness of WEA, and that are consistent with the recommendations in the Government Accountability Office (GAO) Report.<sup>203</sup> We also propose to require small and other Participating CMS Providers to submit performance reliability, accuracy, and speed data for all WEA alert messages and for State/Local WEA Tests.

72. Further, as an alternative, or in addition to, the requirements proposed above to ensure WEA's minimum performance, we considered and seek comment on whether to require small and other Participating CMS Providers to take measures to improve WEA's reliability and accuracy, and on what other potential technical measures we could require to optimize the reliability, accuracy, or speed of the WEA system.

73. We also considered in the alternative, and in the *Further Notice* seek comment on, the feasibility of measuring WEA's performance using staged devices as proposed by CSRIC VIII.<sup>204</sup> Regarding this alternative we inquire, 1) whether small and other Participating CMS Providers could capture actionable information about WEA's performance by conducting regular testing using devices positioned in and around the target area of a Required Monthly Test (RMT);<sup>205</sup> 2) could such a testing and performance measurement requirement also leverage State/Local WEA Tests or leverage alerting authority volunteers to supplement their own; 3) whether small and other Participating CMS Providers could use staged devices to annually measure WEA's performance on a representative sample of handsets and in representative environments, including dense urban, urban, suburban, and rural areas;<sup>206</sup> 4) whether, and if so, how the resulting data collected would differ in quality from the data that we propose to collect today and 5) whether there would be any limitations to the public safety benefits of measuring performance using staged devices. We seek comment these inquiries, and on whether there would be any cost or time savings associated with this approach if small and other Participating CMS Providers had to update network and mobile device firmware to measure WEA's performance using staged devices.

74. *WEA Database.* In the preceding section we discussed our proposal in the *Further Notice* to create a Commission-hosted WEA database containing information filed by small and other Participating CMS Providers that would allow alerting authorities to access and review information about WEA's availability and performance in their jurisdictions. We anticipate that the WEA Database would be an interactive portal where small and other Participating CMS Providers submit information about the availability and performance of WEA on their networks, and where such information could be readily accessible to Participating CMS Providers, alerting authorities, and the public. Our decision to propose the creation of a WEA Database contemplated what would be the most cost-effective mechanism for small and other Participating CMS Providers to submit WEA elections and performance information into the WEA Database. Consistent with this objective, in the *Further Notice* we propose to support electronic filings for WEA elections that leverage GIS shapefiles, drop-down menus, and freeform text where

---

<sup>202</sup> 47 CFR § 11.61(a)(5).

<sup>203</sup> FCC, Emergency Alerting (103277) Corrective Action Plan at 2 (2020), <https://www.gao.gov/products/gao-20-294>.

<sup>204</sup> CSRIC VIII Report on WEA Performance Reporting at 31-34.

<sup>205</sup> *Id.* at 31-32; see also 47 CFR § 10.350(a).

<sup>206</sup> This would be similar to our 911 indoor wireless location accuracy tests. See *Indoor Location Accuracy Timeline and Live Call Data Reporting Template*, (Jul. 26, 2021), <https://www.fcc.gov/public-safety-and-homeland-security/policy-and-licensing-division/911-services/general/location-accuracy-indoor-benchmarks>; *In the Matter of Wireless E911 Location Accuracy Requirements*, PS Docket No. 07-114, 7779 at para. 64 (2020).

appropriate. We envision that WEA performance data that only requires entry of specific numbers or times would be simpler and less costly to submit. We also recognize however, that our proposal may require filings to be made frequently, particularly as updated lists of WEA-capable mobile devices or new performance data on new alerts need to be submitted. Thus, we considered how to best approach data collection for the WEA Database while minimizing costs and other burdens for small and other Participating CMS Providers, such as whether to utilize an application programming interface (API) that would facilitate the automated filing of data. We seek comment on these matters in the *Further Notice*, as well as input on other factors the Commission should consider when designing the data submission elements of the WEA database.

75. There may be alternative approaches to our WEA Database for performance reporting that might strike a better balance between the need that the Commission has identified to provide alerting authorities with access to WEA performance information, while limiting the impact of countervailing considerations, such as costs, development time, or privacy concerns. An alternative recommended by CSRIC VIII proposes a requirement that would use an automated email to convey WEA performance reporting information from Participating CMS Providers to an alerting authority or a centralized reporting location for each sent WEA.<sup>207</sup> CSRIC VIII recommends that the details of this approach should be worked out between alerting authorities, PBS, and Participating CMS Providers.<sup>208</sup> In the *Further Notice*, we seek comment on the utility of WEA performance information communicated by email directly to alerting authorities, either in addition or as an alternative to a WEA database, and encourage WEA stakeholders to file detailed proposals of how this alternative approach could work in practice.

76. *Compliance Timeframes.* To minimize any significant impact our proposed rules may have on small entities, as an alternative to the compliance timeframes we propose in the *Further Notice* we inquire and seek comment on whether it is appropriate to allow Participating CMS Providers that are small- or medium-sized businesses additional time to comply. The compliance deadline in the *Further Notice* for the proposed rules to enhance WEA's language support and integrate WEA more seamlessly into people's lives is 30 months after the publication of final rules in the *Federal Register*. The compliance deadline in the *Further Notice* for the proposed rules to improve WEA's effectiveness with multimedia content is 36 months after the publication of final rules in the *Federal Register*. To facilitate more effective WEA public awareness exercises, Participating CMS Providers would be authorized to support up to two annual end-to-end WEA tests per alerting authority 30 days after the Public Safety and Homeland Security Bureau issues a Public Notice announcing OMB approval of any new information collection requirements associated with this rule change.

77. The compliance deadline in the *Further Notice* for the proposed rules associated with developing measurable goals and performance measures for WEA is 30 months after the publication of final rules in the *Federal Register* or within 30 days of the Public Safety and Homeland Security Bureau's publication of a public notice announcing that the WEA Database is ready to accept filings, whichever is later. This includes the proposed rules requiring small and other Participating CMS Providers to satisfy WEA performance minimums and submit reports measuring WEA's performance. Further, we seek specific comment on whether to offer an extended compliance timeframe for Participating CMS Providers that are small- and medium-sized businesses, which may have different network resource constraints than the nationwide Participating CMS Providers. Additionally, we propose to require Participating CMS Providers to refresh their elections to participate in WEA using the WEA Database within 30 days of the Public Safety and Homeland Security Bureau's publication of a public notice announcing, 1) OMB approval of any new information collection requirements and 2) that the WEA Database is ready to accept filings and seek comment on this proposal.

78. The Commission expects to more fully consider the economic impact and alternatives for

---

<sup>207</sup> CSRIC VIII Report on WEA Performance Reporting at 34.

<sup>208</sup> *Id.*

small entities following the review of comments filed in response to the *Further Notice*, including costs and benefits analyses. Having data on the costs and economic impact of proposals and approaches will ‘allow the Commission to better evaluate options and alternatives to minimize any significant economic impact on small entities that may result from the proposals and approaches raised in the *Further Notice*. The Commission’s evaluation of this information will shape the final alternatives it considers to minimize any significant economic impact that may occur on small entities, the final conclusions it reaches and any final rules it promulgates in this proceeding.

**F. Federal Rules that May Duplicate, Overlap, or Conflict with the Proposed Rules**

79. None.

**STATEMENT OF  
CHAIRWOMAN JESSICA ROSENWORCEL**

Re: *Wireless Emergency Alerts*, PS Docket No. 15-91; *Amendments to Part 11 of the Commission's Rules Regarding the Emergency Alert System*, PS Docket No. 15-94; Further Notice of Proposed Rulemaking (April 20, 2023)

It is the worst nightmare of any parent. Your child has gone missing. I cannot imagine the horror. Nor can I imagine the waves of relief when they are found. During the last decade, as Wireless Emergency Alerts went mainstream, more than 130 children have been rescued and saved from harm. Countless other children and adults have had their lives saved because these alerts gave them the notice they needed to take shelter in a storm or evacuate in advance of deadly fire and floods.

Over the last ten years, more than 78,000 Wireless Emergency Alerts have been issued in the United States. By now we are not just familiar with them, they have become part of the fabric of modern life, much like the mobile phones that are always with us, in our palms, pockets, and purses. It can be easy to forget that this alert system for public safety is still relatively new. But it is important to remember this is a system we can still improve.

That is why today we have a series of proposals to enhance the accessibility of Wireless Emergency Alerts. This effort starts with language. Right now, these alerts can only be sent in English and Spanish. But I think we can do more to reach more people in more places with emergency information. In fact, I know we can.

A big reason for this is that New York State Attorney General Letitia James—who joined us today—brought to our attention how expanded multilingual alerting can save lives. In a letter she wrote late last year, she highlighted how during Hurricane Ida nearly all of those who lost their lives in rising floodwaters in New York spoke languages other than English and Spanish. The Wireless Emergency Alerts never reached this population. She called on us to do more and noted how the New York City Emergency Management Department has developed an application that provides alerting in English and 13 other languages. It proves if we are creative we can find a way to do this—and we can save more lives.

Another reason I know we can do better is that in advance of today's rulemaking I wrote to the nine largest providers of Wireless Emergency Alerts to inquire about what more can be done to have these alerts available in more languages. Their responses informed this effort, and I am hopeful they will speed this process.

But we're not stopping there. Because there are other improvements we can make. We propose a new database to increase transparency and track participation in Wireless Emergency Alerts along with performance information like reliability, speed, and location accuracy. And, ending where I began, we ask about sending thumbnail-sized images in alerts, noting that it would be especially effective for those involving missing children.

In short, we can do some real good here. We can improve Wireless Emergency Alerts and make this relatively new tool for public safety more powerful, more accessible, more accurate, and more effective. So let's get to it.

I want to thank the staff responsible for this effort including Nicole McGinnis, Austin Randazzo, Erika Olsen, James Wiley, Shabbir Hamid, Michael Antonino, David Kirschner, Tara Shostek, Haille Laws, Ahmed Lajouji, Steven Carpenter, and David Sieradzki from the Public Safety and Homeland Security Bureau; Christina Clearwater and Garnet Hanley from the Wireless Telecommunications Bureau; Suzy Rosen Singleton and William David Wallace from the Consumer and Governmental Affairs Bureau; Victoria Randazzo, Jeremy Marcus, and Ryan McDonald from the Enforcement Bureau; Chana Wilkerson from the Office of Communications Business Opportunities; Aleks Yankelovich, Craig Stroup, Emily Talega, and Cher Li from the Office of Economics and Analytics; William Huber, Elliot Tarloff, Douglas Klein, and William Richardson from the Office of General Counsel.